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HENRY W. TROY - DEL. COLLINS & SHUGG. SC.

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Improved Patent Gang Saw-Mill.

A DISTINCTIVE feature of this machine is the great economy of space and labor achieved by its use in the necessary preliminary operation of erecting the foundation and building for a mill. Of course, a certain amount of space is required to do the work in, but this being principally in height, the necessary shelter becomes small. Moreover, as it is not connected with the machinery, it can be reduced to a mere shed of the rudest description. The machine being complete in itself, and the entire thrust of the saws coming on the roller stands, which are a part of the frame, no shock is communicated to the foundation; since that has nothing to do but to carry the weight of the machine, and the unavoidable vibration attendant upon all reciprocating movements. The point of suspension being above the centre of gravity, the heavier parts act as ballast to steady the whole. Simplicity being a primary object, the guides for the sash are made a part of the upright frames by which the entire machinery is sustained; the stands that carry the rollers feeding the log and also receiving the thrust of the saw, are likewise a portion of the same castings; and the pendant part to which the cylinder is bolted is continued down to form the bearings for the crank shaft, thus giving a strength and stiffness not to be obtained by any method of construction involving separate pieces bolted together. Upon the inside of each of the same frames are cast wide flanges or brackets, which are stiffened by substantial transverse ribs, resting upon the timbers that form the foundation for the machine.

The extreme simplicity of this foundation is one of the peculiar features of the machine. It consists of a simple truss, or of two heavy sticks of timber, resting upon the ground, and with a pit excavated between them, to allow room for the machinery that lies below the supports. It is not absolutely essential that the machine should be in a truly vertical position, since it is complete in itself, and the steam cylinder has large flanges cast on it, which are securely bolted to the frames by turned bolts driven into the rimmed holes, thereby forming a lateral brace, to prevent the machine from racking and giving way. The power being applied directly, none of it is expended in wearing out intermediate bearings and gear; and as there are no belts to break, there will be a corresponding saving of time and patience.

The arrangement for feeding up the timber to the saws is of the simplest description, consisting of an arm with a pawl upon the end of it, operating upon a ratchet wheel, and ec eiving motion from a crank eccentric, keyed upon one of the wrist-pins. The amount of feed is regulated by a slip or tongue-piece, covering a portion of the ratchet-wheel, which can be moved by a small lever to cover the notches which the pawl would otherwise engage.

The accompanying cut represents one of these machines of the smallest size, intended for the purpose of splitting after the log has been slabbed. The saws are very short, and can therefore be run of extreme thinness—as thin as No. 20 wire gauge, even in soft timber. It is thus rendered possible to saw and plane to any desired thickness, with a loss of only one-eighth in the thickness of the timber. The machines of larger size are intended to split the log into boards at one operation; and being used in conjunction with a machine for edging the same, get over forty per cent. more lumber from the same stock than is obtained by the usual wasteful method of sawing with circulars. These mills are built by the WOOD & MANN Steam Engine Company, Utica, N. Y., which is a guarantee of good and reliable workmanship, and of a trustworthy machine in every respect. Orders may be addressed to this company, or to WILLIAM PENNY, the patentee, at Milton, Santa Rosa Co., Florida.

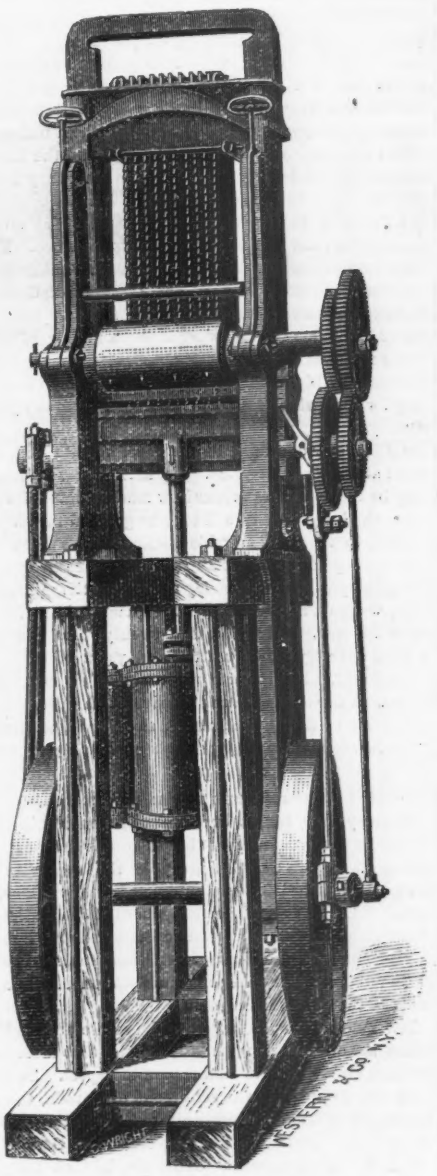
Bad Roads In Mining Regions.

As a rule, the mining districts of Missouri have the material at hand for making first-rate turnpikes, or at least good roads, which could be traveled during all seasons of the year. Yet we notice by some of our exchanges, that the deep miry condition of country roads prevents teamsters from hauling lead ore to the furnaces, as well as from getting the pigs to the railroad. Slackness and lack of thrift and thoroughness are the only excuse for bad roads almost anywhere in Missouri. Every man who pays taxes upon an acre of land in the State is assessed with road taxes, and year after year, in some counties, scarce a day's work or a dollar in money is expended in repairing roads. The citizens of Bollinger county offer to pay the overseers or supervisors premiums for the best and second best roads in that county—the County Court to decide. There is great need of reform in this matter, and if the State laws are insufficient they should be amended to meet the real needs of the country in this respect.—*St. Louis Jour. of Commerce.*

The Mount Washington Railway.

THE London *Engineering* gives the following interesting account of this ingenious work:

"About a dozen years ago, Mr. SYLVESTER MARSH, then of Chicago, conceived the idea of constructing a railway up the rugged slopes of the White Mountains of New Hampshire, with a novel outfit of rolling stock, capable, as he believed, of transporting the throng of summer visitors to the summit of Mount Washington, six thousand feet above the sea level, on grades of one in three. The boldness of the plan, emanating from a man who laid no claim to professional knowledge, caused it to be looked upon as visionary and impracticable. For a long time Mr. MARSH vainly importuned engineers and capitalists to endorse his scheme. A small model of his track and machinery was on exhibition for years in the Merchants' Exchange of Boston, without attracting any effective attention, and his application to the Legislature of New Hampshire for a charter was granted almost by default, nobody believing that it would ever be heard of again. But the projector was persevering, and at length succeeded in enlisting the attention of parties interested in the various lines of railway over which the summer travel passed to and from the mountains. By their aid, in 1866, a short piece of experimental track was laid up the lower slope of the mountain, and an engine built to attempt the ascent. The experiment was successful. Capital was obtained to push it further, and in August, 1868, the line was opened for travel to a point within three-fourths of a mile of the summit, and at the commencement of the season of 1869 it was completed and put in use to the Tip-top House, on the crown of the mountains.



W. PENNY'S PATENT GANG SAW MILL.

"At first nervous travellers avoided the very airy-looking conveyance, and only the bolder half tried the new and easy mode of ascent. A still smaller proportion attempted the descent, which was the most fearful looking of the two. But as no accident occurred—and it was demonstrated that ample provision had been made for the ordinary breakages and derangement of machinery or tracks—confidence was established, and the road obtained all the patronage that its equipment could accommodate. In illustration of its apparent safety, it may be stated that more than nine thousand tons of construction material have been transported over it, and great numbers of passengers, without accident or injury to property or person, the only individual ever injured being one of the workmen, who, having a careless habit of taking an easy way of getting down one of the steep inclines by placing a board on the centre track and sliding upon it, came to grief and a broken leg, one day, for want of a suitable brake on his machine.

"The road bed of this extraordinary structure is mainly a timber trestle work, cut from the forest of spruce that covers the lower slopes of the mountain. The rails are of the ordinary strap pattern on longitudinal timbers, with a gauge of about four feet. In the middle of this track a third longitudinal timber is securely fastened, and surmounted with a heavy rack or ladder of wrought iron, into which steel pinions work from the engine and car, the motive power being a locomotive engine working through counter-shafts and pinions into this fixed rack. Iron pendants from the engine and car, with flanges turning under the longitudinal timbers, prevent the possibility of the train being lifted from the track by wind or other force, and by a combination of atmospheric brakes and brake-straps on the pinion-shafts the train can be stopped under all emergencies.

"The engine is placed below the car, and retains its position both in the ascent and descent. It has an upright boiler and horizontal cylinders, with crank-rod continuation of the piston, like an ordinary locomotive. The weight is about seven tons. The car body is of the ordinary American pattern, but about half the common size and capacity, mounted on four wheels only. The weight is about four tons, and the seats are placed as in a common American car, and so hung on stirrups as to retain their horizontal position under all circumstances, an advantage which is quite manifest when the incline brings one end of a thirty-feet car ten feet higher than the other. The time occupied in the ascent or descent of the three miles of railway is about one hour. The maximum grade is 1,700 feet to the mile, and the average grade, from the elevated platform where the road now starts at the foot of the mountain, is 1,300 feet per mile.

Slate Quarries in the United States.

TO THE EDITOR: Sir—A paragraph in the ENGINEERING AND MINING JOURNAL of November 30, on the Slate Trade in Wales, attracted my attention, mainly because I have been over the places alluded to several times, from Bangor, in Carnarvonshire, to Corris and Mallynlleth, in Merionethshire. There are splendid quarries in both of these districts; but it is perfectly understood in Wales, that it is requisite to have a large sum of money to start with in opening a new quarry. No one there will attempt to open a quarry with less than £10,000 in gold. After the expenditure of large sums in opening them, they do pay well to the owners, who get in general from fifty to sixty per cent.—certainly as good interest as they could expect from any speculation. If the slate quarries in Wales pay their owners such large dividends, it is worth while to consider that there are equally good veins in the United States. In the first place, we may notice the neighborhood of Fairhaven, in the State of Vermont, where there are slate quarries opened on ten parallel veins, and all of them are productive. The Eagle Quarry was, some time ago, the best of the whole; but I understand that there are many of them now returning a better profit to their owners than is the Eagle, although the vein at the latter is not worse than it was two years ago. The excellence of these veins may be seen from the fact that, in several of them, the men have been able to dress slates from the depth of only three feet (and some less) from the surface. The common depth of these quarries does not exceed from fifteen to twenty feet, while in Wales they often extend the depth to sixty yards and more. Every experienced slate-quarry-man knows that the deeper they will go, the more solid the rock will be, and, of course, the more slate or slabs may be produced from the same quantity of blocks. Our quarries are not deep enough. The slates do not keep their color. Indeed, how can they keep their color, when they are so near the surface? This is especially the case where some sulphuret of iron is in the rock. If good strong companies should

undertake to work some of these veins in the same style as they do in Wales, I believe that they would obtain better dividends than any of the Welsh quarries return to their owners. The districts of Poultney and Jamesville are full of the same sort of quarries. Most of them are leased by poor workingmen; and their quarries look to a stranger more like diggings in an alluvial gold field than anything else; but they have sold thousands of squares of slates from many of these little holes. There is a splendid-looking place for quarries like those of Fairhaven, at Middle Granville, New York; but so long as poor men keep opening quarries on the surface merely, without getting any depth, the slates will be blamed concerning their color. I shall give, hereafter, a line or two on the Middle Granville quarries, as they appear at the present time.

MINER.

The United States Mining Law.

WASHINGTON, D. C., December 20th, 1869.

R. W. RAYMOND, ESQ., U. S. COMMISSIONER OF MINING, ETC.:

DEAR SIR—You have asked me to state what I have observed with regard to the workings of the national mining law—how it is liked; what faults, if any, are found with it; and what improvements, if any, are proposed; and to embody in the form of amendments such suggestions as I have met with as seem worthy of approval.

I hesitated long before promising any compliance with the last request, my experience in mining codes having taught me that while it is easy to point out defects, the cure for them requires great time, thought and care, combined with a knowledge of the subject difficult to attain. I was disposed to be grateful for the benefits secured by the act in question, and to look with distrust upon any attempt to supplant it with a more elaborate code, fearing that to open the subject again, might imperil advantages already gained; but when I came to understand your position better—when I saw that you were as anxious as any of the miners could be, to preserve the most popular features of the law unimpaired, and only sought to add to the efficiency of the act by amendments with regard to details, which it is universally admitted the first general draft of the law did not cover, I felt bound, of course, to do anything I could to aid in the matter. It is only by a free interchange of sentiment on the part of all who are affected by the law, that the information can be obtained which is necessary to enable any one to draft general provisions which will be applicable to the vast extent of country sought to be brought within the operation of the Act. My observations have been confined chiefly to silver mining in the State of Nevada, yet it is with great diffidence I venture some suggestions as possibly being applicable to that branch of mining within even that comparatively limited area. How they would affect California, Colorado or New Mexico, Arizona, Oregon or Idaho, Montana, Washington, Wyoming or Dakota, in silver mining alone, to say nothing of gold, cinnabar or copper, which the law also covers, is more than I can tell. There is a great probability, also, that we will before long acquire jurisdiction over the Mormon territory of Utah, when farther modifications in the Act may be necessary. If we had a full discussion of this subject from the different regions mentioned, we might then hope to educe some general principles applicable to all. We cannot expect a satisfactory law in a day. If we succeed in getting a good one after ten years' careful work, we shall be fortunate indeed.

RETROSPECT.

A great many persons feel that what they call interference in this subject by Congress, is somewhat in the nature of an infringement upon established rights. A slight review of the status of the case may cause such persons to look upon the matter in a different light. Up to the year 1866, we had no general law on the subject of mining, nor any official declaration as to what policy the government intended to pursue with regard to the precious metals in its soil. The general policy of nations had been to reserve these treasures as *jura regalia*, and thus treat them as the special property of the sovereign, to be mined under such regulations as might from time to time be ordained; to be licensed, leased or granted, as might at any time be thought best. In older times, when all authority was concentrated in a single sovereign, who could quickly adopt and easily enforce any policy he pleased, it is easy to see how a system which furnished so convenient a means of revenue was eagerly established. But the discovery of our precious metals, in quantity worthy of national consideration, came in the midst of great excitement, right after the Mexican war; the mines were in a distant region, and before the government was able to acquire any definite knowledge of the extent of the deposits, hundreds of thousands were engaged in working them. To determine upon a governmental policy in the matter, required, not the will of a single sovereign, but the concerted action of some hundred members of Congress, to whom the subject was new and the information thereon scanty and difficult to obtain. As a natural consequence, nothing was done at that time. The ultimate rights of the government, it was argued, were safe. They could be asserted at any time. Meanwhile, the people, finding some law necessary, began to make regulations for themselves. Whenever a number of miners found themselves working together in a certain locality, they called a meeting, organized a mining district, established its bounds, defined the extent of ground each man might hold, and fixed the amount of work he should do per month, or per year, to retain it. They enforced these rules *vi et armis* at first. Very soon the courts, in the absence of other laws, and finding these codes well suited to the cases coming before them, adopted them as the rule of judicial decision. The system thus instituted in California, gradually spread to the adjoining States and Territori . It had some imperfections; it gave no absolute title to the mine. If a man left his district, he was liable to find the law of tenure changed and his claim "jumped" on his return; but on the whole, the miners preferred to let the system stand rather than ask any aid from Congress. All they wanted from the government was uniformity and stability of tenure, with the right to purchase the absolute title when their labor had demonstrated the value of the claim; but they feared to agitate that question, lest the price should be placed at a figure beyond their reach, and so, by common consent, they kept very still on this point, and worked away under the let-alone policy of the government.

NEW POLICY PROCLAIMED. THE GOVERNMENT ASSERTS ITS RIGHTS.

For nearly twenty years the government had quietly looked on at all this work of the miners, saying nothing, not knowing what to say. Nobody was complaining. Millions of dollars were rolling into the great cities of the East every month, trade increasing, manufactories thriving, and everything seemed to be working well enough without the need of interference. But now came a great difficulty. The government, for the first time in many years, began to be pressed for money. It had just emerged from a great war, was burdened with an enormous debt; heavy taxes were levied, and still the treasury was empty. Suddenly there rose a party in the East with the cry, "Sell the mines! they'll pay the debt!" The thing took. Bills were introduced in both houses of Congress immediately. I do not remember the details of the bills, but I understand the main feature was to put the mines up at auction and sell to the highest bidder. This principle was particularly odious to the miners, and roused their indignation to the highest pitch. At a tremendous sacrifice of life and health, of the comforts of home, and the pleasures of civilization, the vast regions of the far West had been explored, and these mines discovered and made valuable by the labor bestowed upon them. It was notorious that, as a class, the miners were poor. They had sent forth million upon millions to quicken the pulse of trade, but received in exchange only the necessaries of life, which were quickly consumed; while the gold produced, and the profits on the articles consumed, were both gathered to the money centres of the East. To sell the mines as they then existed to the kings of these centres, as the highest-bidder plan would necessarily do, would have been to sell them not only the bare title to the mines, but also the lives and the labor that had been sacrificed to make those mines what they were. If the sentiment in other regions on this question was similar to that in Nevada at the time, I do not exaggerate at all when I say that no such law could ever have been enforced. Fortunately, the mining interest was ably represented in Congress, led by Senators Stewart of Nevada, and Conness of California, both thorough masters of the subject. They grappled the question with all their power, knowing it was a matter of life or death to the regions they represented, and, after a desperate struggle, defeated the highest-bidder plan, and achieved a complete victory for the principles most anxiously desired by the miners, namely, the recognition of their mining laws, and the right of the discoverer of a mine to purchase the title from the government at a reasonable price. No matter how defective the bill may be in detail; no matter how many points it leaves entirely untouched, the miners will ever be grateful for its passage, for in that, to them, memorable session, it was not a question of detail nor perfection, but a struggle between two great conflicting principles, and the policy desired by the miners prevailed. Still, we must remember that the quartz-mining interest is yet in its infancy. It has not had twenty years' growth yet, and it is an industry which a thousand years of exploitation will not exhaust. It behooves us, then, to elaborate our mining code with the utmost care; to give it the greatest attainable perfection of detail, and, at the same time, to generously enlarge its scope until every branch of mining industry receives the fullest protection it is possible to afford.

HOW THE LAW IS REGARDED.

Gregory Yale, in his excellent work on Mining Claims and Water Rights, who may doubtless be taken as expressing the general feeling in California, says of the law: "As the initial act to the legislation which must necessarily follow, it is more commendable as an acknowledgement of the justice and necessity which dictated it, and for its expediency as a means to the advancement of the State and nation than for the perfection of its provisions, or their exact adaptation to the accomplishment of the object intended."

Mr. Yale hastens, however, to deprecate unfriendly criticism of the act on this score, acknowledging that more was done at the first stroke than we had reason to expect. So far as I have been able to judge of the sentiment of Nevada, the only place where I have had an opportunity of examining the operation of the law, it is much more favorable than that expressed by Mr. Yale. Nevada, unlike California, had no long line of decisions recognizing the validity of her district laws. In the so-called "outside districts" of Nevada, these laws generally provided for forfeiture and relocation of claims. An immense amount of re-locating had been done, but the validity of such action was not yet judicially established. Capital was afraid to buy either the old or the new title. All was uncertainty and confusion, mines unworked, miners idle, capital standing aloof. This act at once restored order, certainty, and confidence, in such regions, by reason of the provisions of Section One, which recognized the binding force of local rules and customs. A relocation made in accordance with the laws of the d strict became at once of as much value as though it had been the original title; people knew where they stood; capital was invested with safety, and many districts sprang into new life, directly under the operation of this section of the law. While this much must in candor be said of the first section, it is also true that while the principle of granting patents for mines is peculiarly welcome to the miners, the manner in which this principle is applied in the other sections has been so objectionable, that very few applications for patents have been made except in the comparatively few cases where the restriction of the grant to a single vein in the area claimed made no difference to the owners from the fact that no other vein was supposed to exist in their area besides the one for which a patent was asked. This matter will be more fully set forth under title Fourth, in that portion of this letter where the objections to the law are separately treated.

WHAT FAULTS ARE FOUND WITH THE LAW.

The objections to the present law are numerous, but the following may be considered as the most important:

1. Not fixing the size of the tract.
2. Allowing piratical locations to be made in the immediate vicinity of *bona fide* claims.
3. Permitting later locations within 250 feet of the centre of an old location, to prevent the lateral extension of such old claim to the full width of 250 feet each side of said centre.
4. Restricting the patent to one vein in the first instance, and not allowing a patentee to purchase other veins found in his area without the formality and expense of a new patent.
5. Not providing for the disposition of bodies of outlying ore often found near a productive vein, but which, strictly speaking, are not a part of it.
6. Not determining in cases where two veins cross in depth who shall have the ore in the space of intersection.
7. Not determining in cases where two veins unite in depth and become one, how the same shall be held below the point of union.
8. Granting patents before work enough is done to determine the width and course of the vein.
9. Not providing for a uniform condition of tenure of possessory claims.
10. Not providing for greater safety of district records.
11. Not providing some mode to settle the question whether a mineral deposit proposed to be patented is a vein or only a deposit, and, in case it be merely a deposit, not limiting the patentee thereof to the area granted.
12. Not extending the law to placer mines, river diggings, gravel claims, and cement deposits.
13. Not providing a mining school and surveying fund.
14. Not preventing rascals from floating a location originally placed on a worthless claim to some new discovery of greater value.
15. Allowing the Register to publish the notice for a patent at such cost to the claimant as the Register and printer may choose to agree upon, instead of permitting the claimant to make his own bargain for that service.
16. Not prohibiting mere extensions.

WHAT REMEDIES ARE PROPOSED FOR THESE DEFECTS.

In your report for 1868 you suggest remedies for most of these objections. I will take up the objections one by one and place by the side of each the remedy proposed. This arrangement will have two advantages:

First. All who choose can then see exactly what objection is made. If it be too strong for some regions or not broad enough for others, parties resident therein can enlarge or modify them accordingly.

Second. If the form of the objection be satisfactory, parties interested can judge of the propriety of the remedy proposed and acquiesce or suggest improvements, as the case may be.

The general principles of the existing law are contained in the following sections:

SEC. 1. The mineral lands of the public domain, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and occupation by all citizens of the United States, and to those who have declared their intentions to become citizens, subject to such regulations as may be prescribed by law, and subject also to the local customs or rules of miners in the several mining districts, so far as the same may not be in conflict with the laws of the United States.

SEC. 2. Whenever any person, or association of persons, claim a vein or lode of quartz or other rock in place-bearing gold, silver, cinnabar, or copper, having previously occupied and improved the same, according to the local customs or rules of miners in the district where the same is situated, and having expended in actual labor and improvements thereon an amount of not less than one thousand dollars, and in regard to whose possession there is no controversy or opposing claim, it shall and may be lawful for said claimant or association of claimants to file in the local land office a diagram of the same so extended, laterally or otherwise, as to conform to the local laws, customs, and rules of miners, and to enter such tract and receive a patent therefor, granting such mine, together with the right to follow such vein or lode, with its dips, angles, and variations, to any depth, although it may enter the land adjoining, which land adjoining shall be sold subject to this condition.

SEC. 3. Points out how the proceedings in applying for the patent shall be conducted, and how the survey shall be made, closing with the clause: "But said plat, survey, or description, shall in no case cover more than one vein or lode, and no patent shall issue for more than one vein or lode, which shall be expressed in the patent issued.

SEC. 4. Permits a departure from a rectangular form of survey, and ordains: "That no location hereafter made shall exceed two hundred feet in length along the vein for each locator with an additional claim for discovery to the discoverer of the lode, with the right to follow such vein to any depth, with all its dips, variations, and angles, together with a reasonable quantity of surface for the convenient working of the same, as fixed by local rules." *And provides further*, "That no person may make more than one location on the same lode, and not more than three thousand feet shall be taken in any one claim by any association of persons."

SEC. 5. As a further condition of sale, in the absence of necessary legislation by Congress, the local legislature of any

State or Territory may provide rules for working mines, involving lasements, drainage, and other necessary means to their complete development, and those conditions shall be fully expressed in the patent.

SEC. 6. Ordains that in case of contest of title all proceedings relative to a patent shall be stayed until the question is decided in the local courts.

SEC. 7. Gives the President power to establish additional land districts, as may be necessary.

SEC. 8. Permits the construction of highways over public lands.

SEC. 9. Relates to water rights.

SEC. 10. Allows pre-emptions to homesteads on lands formerly designated as mineral lands, when no mines up to the time of pre-emption have been discovered on them.

SEC. 11th and last. Gives the Secretary of the Interior power after survey to designate what lands shall be treated as agricultural, and what ones sqall be considered mineral lands.

The foregoing synopsis embraces all the principles of the act relating to mining. I will now proceed to the objections made, and the amendments solicited.

FIRST.

Objection: That the area of the tract granted is dependent upon the laws of the district in which the claim is situated, and consequently is subjected to all manner of variations as to its extent.

Remedy suggested.—Let the law prescribe the area, regardless of miners' customs.

Comments.—What size should be prescribed? That it ought not to be more than three thousand feet in length upon a vein, most are agreed: but is it right, some may ask, to compel a man to pay for more than he wants to buy? No; but the government can say what sized tracts it will sell, and parties may buy or not, as they choose. Where a vein crops the whole distance, the claimant will cheerfully take the full extent of three thousand feet; but when it crops only five hundred feet in length, and the remainder of the ground appears to be barren, or is broken up too much to permit of working it to advantage, or lies flat and seems to be worthless, he will wish to reject the latter part. Then, again, how shall the width be fixed? It is generally admitted that at least two hundred feet on each side of the vein should be given, when possible; but that leaves the whole width of the tract still indefinite, because the vein itself may vary from one inch to five hundred feet in width, and all of that width is to be granted in addition to the two hundred feet on each side. But as either of these extremes of width are very rare, would it not be well to fix on five hundred feet as the settled width of the area to be patented? The claimant can then select a line which he is willing to accept as the centre of his ven, and take two hundred and fifty feet on each side of it. But will this meet a case where the vein itself is more than five hundred feet wide? Yes, if the principle of consolidation hereinafter suggested in title second be also adopted. If the width be fixed at five hundred feet, no claim should be permitted to be of less length than a like number of feet. What shall be done with fractions less than five hundred feet, occurring when two claims run toward each other on the same vein, but are stopped by the three thousand feet limit before they join? Treat them like fractions in the agricultural surveys. Include them in the patent of the nearest owner. We fix the area which a claimant of agricultural lands may receive; why not with mineral lands also? The government has a direct interest in seeing that no claims are too small, as well as in preventing their being too large. There is such a thing as cutting up a piece of valuable ground into such impracticable shapes that it will be of no benefit to any one; and in the matter of division, the owner, and not the purchaser, should decide. It is to the interest of the government to see that these mining claims are large enough to justify the great outlay necessary to thoroughly prospect them. It is wrong to permit any one to locate as small an amount as two hundred feet along the line of a vein. The Comstock was ruined by small locations. They are the death of legitimate mining, and available only for the worst kind of stock-jobbing purposes. One deep shaft will suffice to work a claim two thousand feet long. Ten will be needed to work ten claims of two hundred feet each, when held separately, as they may be, and often are now. All of the labor on nine of these shafts is lost to the public, and that is one of the parties interested in this matter; for the country is enriched from mining in proportion as the yield of bullion exceeds the cost of production. Labor is capital just as much, so far as kind is concerned, as money is. Labor and money combined make capital which may produce property. Either of them, by itself, is also capital; but labor can produce property working alone, which money can never do. A waste of labor is just as serious a loss to a country, so far as it goes, as a waste of money. Successful mining, as a rule, requires a proper application of science, money and muscle. When laws are to be framed for the regulation of the mining industry, the representatives of all of the elements essential to its existence are entitled to a voice in their enactment. It does not settle the question for the prospector to say: "If I am willing to take two feet, or two hundred feet, and take my chances on it, whose business is it? If it don't pay, it's my own loss." No, it is not simply his own loss. A mine has been ruined, no one benefitted, and the country, as well as the miner, has lost a certain amount of labor. Neither should money or science alone determine the law; but all should consult, make the best terms they can with each other, and abide the result.

The present supposed limitation in the law, restricting each locator to two hundred feet, is a nullity at the best, if a party wishes to avoid it. When a prospector goes out to hunt for claims, he is generally backed by one or two persons, who contribute a portion of the expense of the trip. Among them they make up a list of names of such of their friends as do not care to engage in mining, and who readily agree to execute deeds whenever called upon, for any ground which may be taken up in their names. If the prospector finds a promising vein, he locates it, using these names in conjunction with those of the parties directly interested, setting down two hundred feet for each name. When he returns, the complaisant friends congratulate him on his success, and execute the deeds, as promised; and thus the real owners have obtained five hundred or one thousand feet each, as the case may be, virtually by location in spite of the law. As the restriction is a nullity and ever must be, so far as the good it aims at is concerned, but is still potent for evil in the tacit permission it gives to make small locations, why not remove it altogether, and prohibit the cutting up of valuable property into worthless fragments?

AMENDMENTS TO MEET THE FOREGOING SUGGESTIONS.

SECTION —. On vein locations made on and after the first Monday of July, 1870, the area for which patents may issue shall be in length not less than five hundred feet, and not more than three thousand feet, and may be of any width not exceeding five hundred feet.

SEC. —. On vein locations made prior to the first Monday of July, 1870, the area may be for such amount as is claimed by the owner and allowed by the district laws governing the location, not exceeding three thousand feet in length by five hundred feet in width.

SEC. —. The length of a claim on a vein location, in all cases contemplated by this Act, shall be measured in the direction of the general line of some one vein in the area claimed, said vein to be designated by the claimant.

SEC. —. On deposit locations made on and after the first Monday of July, 1870, the area shall be a square, whose side shall be not less than five hundred feet, and not more than three thousand feet in length.

SEC. —. On deposit locations made prior to the first Monday of July, 1870, the area shall be as governed by the laws under which it was made: *provided*, that when the area claimed, in cases contemplated by this section, exceeds an area equal to three thousand feet square, it shall satisfactorily appear that said locations are not unreasonable in extent, considering the expense necessary for their development.

SEC. —. On and after the first Monday of July, 1870, the whole of the area in a mining claim for which a patent may issue, may be located by one or more persons.

SEC. —. On and after the first Monday of July, 1870, no location shall be made within two hundred and fifty feet of the longitudinal centre line of an existing mining location.

SEC. —. All distances mentioned in this Act shall be determined by horizontal air-line measurement.

Notes.—1. The adoption of these sections would also require a modification of the language of Section 4 of the existing law.

2. I know nothing about how these sections would affect gold-placer or cinnabar deposits.

3. These amendments relating to area should be considered in connection with those to be set forth under objections 3 to 7 inclusive.

I shall continue the discussion of the subject in another communication.

E. F. DUNNE.

Some Occurrences of Native Copper at Keweenaw Point, Lake Superior.

Translated from the German of Professor HERMANN CREDNER, of the University of Leipsic, by MAX MOELLER, M. E.

I.

THE copper mining of Lake Superior is concentrated in two districts; the neighborhood of Ontonagon and that of Keweenaw Point. This last name is given to a rocky peninsula stretching out from the south shore of Lake Superior in the form of a horn, and running in a northeasterly direction about seventy miles into the Lake. Near its neck it is almost entirely separated from the main land by the Portage Lake, which connects with Lake Superior by the Portage river. Only a narrow strip of land, half a mile wide, forms the connection between the main land and the peninsula.

The geological backbone of the peninsula is formed by a belt of the average width of one and a half miles of stratified melaphyrs, diorytes, and amygdaloids, the more detailed characteristics of which I shall give below, with single, intercalated layers of coarse, hard conglomerate. These rocks form, in the northeastern part of the Keweenaw peninsula, two parallel ridges, with steep, rocky slopes, 1,300 feet high, towards the south, and more gentle declivities towards the north. Near the Portage Lake they unite, however, and form an undulating plateau, deeply cut by the bays of the lake.

This mass of melaphyrs and diorytes, with intercalated conglomerates, dips north in the northern part of Keweenaw Point, where the strata strike east and west; further south, near Portage, the strike is northeast and the dip northwest. They are overlain by hard, coarse conglomerates, resembling the "Rothliegendes," and by reddish-brown sand-stones, with arenaceous clay schists, which again alternate with melaphyr strata, from 400 to 800 feet in thickness.

The melaphyr and sand-stone belts are, therefore, members of the same system, in which only the relative proportion of the constituent rocks is reversed; since, in the lowest group, the melaphyrs, amygdaloids, and diorytes predominate over the conglomerates and sand-stones, while the latter are most prominent in the upper group. The eastern coast of Keweenaw Point consists likewise of sand-stones, which lie, however, nearly level, are cut off by the north and northwest dipping melaphyrs and conglomerates, and belong to the lower Silurian. Whether the first-mentioned melaphyrs, conglomerates and sand-stones are likewise of Silurian age, or whether they are Mesozoic, as some contend, is, for the present, an open question, which cannot be decided as yet, since fossils and decisive exposures of stratigraphical condition are alike wanting.

The peninsula of Keweenaw may, therefore, be divided longitudinally into three geological belts:

1. An easterly belt of lower Silurian, Potsdam sand-stone.

2. A middle belt of predominating melaphyr and amygdaloid, intercalated with conglomerates.

3. A western belt, with predominating later conglomerates and sandstones, intercalated with melaphyrs.

To the middle, or melaphyric and amygdaloid belt, the occurrence of native copper is chiefly confined.

The copper occurs: 1—Completely or partly filling the amygdules in the stratified amygdaloid; 2—As accidental constituent of the epidosite, which lies in irregular beds between the layers of melaphyr; 3—As cement, or accidental constituent of the gritty cement of a felsitic porphry-breccia occurring between the melaphyrs; 4—Filling the fissures which intersect the melaphyr.

The following description of several characteristic instances of the different occurrences of native copper above enumerated may serve to show their nature. In addition to several deposits discovered so recently as not to be as yet widely known, I shall include the Cliff mine, the peculiarities of which were, it is true, described by KOCH, FOSTER, and WHITNEY, years ago. Since the publication of their reports, however, the mining operations of fifteen years have thrown new light on the nature of the Cliff vein.

THE CALUMET-HECLA DEPOSIT.

About nine miles north of Portage Lake, a melaphyr crops out, belonging to the belt of bedded volcanic rocks which I have called the backbone of Keweenaw Point. Its texture ranges from earthy to massive; it is rough, and of dark chocolate brown color, with delicate bluish-green stains. In this mass occur amygdules of which calcspar and red Laumontite and nodules of ferriferous chloritez, so arranged that they abound in some zones, whilst they are missing altogether in others. This alternating amygdaloidal habitus, together with the cleavages, which dip 45° northwest, (not forming, however, the boundaries of the several amygdaloidal stripes, but running independent of them), impart to this melaphyric amygdaloid a distinctly stratified appearance. Between them, and corresponding in its position with one of the melaphyr layers, occurs the recently-exposed Calumet and Hecla deposit, a breccia of felsitic porphyry, containing native copper. It may be described as follows:

Sharp-edged fragments, about an inch long, of a compact, reddish brown felsitic quartz-porphyry, with individuals of gray quartz and crystals of dark-red orthoclase, are cemented together by fine-grained fragments of the same rock. In some places the many-sided fragments of porphyry are rounded off at the edges, and then mostly only sintered together, while the interstices are either filled with calcspar or left open. In like manner occur now and then masses of perfectly-developed dark brick-red orthoclase crystals, sometimes three-quarters of an inch long; they represent the type known as "Carlsbad twins," with rounded edges, without matrix, and only fitted together at their several points of contact. In some places, where the fine-grained fragments predominate, the breccia assumes the character of a sharp-grained sandstone, and, towards the footwall, even that of a fat red clay. In the former the shining planes of the brick-red orthaclase are still distinctly visible.

As an accessory constituent of the matrix of this breccia of felsitic porphyry, and of the felsitic sand-stone, and also as the sole cementing substance of the portions where the fragments are simply agglomerated, native copper occurs; but never *in* the quartzose porphyritic fragments of the breccia. In the first case the copper assumes fine fibrous and mossy dendritic forms; where it forms the cement, it occurs in coatings or connected sheets, branching off in every direction, and accommodating itself to the shape of the fragments, like a net-work. In the sand-stone it is so finely divided as to be hardly discernable, and sticks out of the surface only as small points. Sometimes, but quite seldom, it forms the predominating constituent of the rock, in which insulated porphyritic or orthoclastic fragments are embedded. In some cases, the copper forms fine scales upon the cleavage of the orthoclase. On an average, the percentage of copper may be 5 per cent.; in some places, however, 30 to 40.

At the outcrop of the deposit, and to the depth to which the decomposing agencies of the atmosphere penetrate, the native copper is transformed into red copper ore and malachite, and the hard breccia is thus rendered less cohesive. The thickness of the deposit varies from four to sixteen feet, since it widens and contracts alternately. Everywhere, however, it is distinctly bounded towards the melaphyr-amygdaloid on either wall; and along the footwall there is a selvage, or "gouge," of the above-mentioned red clay.

The character of the amygdaloid which overlies the porphyritic breccia is somewhat different from that of the under-lying ones. The matrix of both rocks is the same; but the amygdules of the under-lying bed are smaller, and filled with white calcspar and small quantities of copper only; whereas, the upper strata, especially near the breccia-beds, contain many veins and fissures, as well as large amygdules. These are all lined with a layer of cherry-red Leonhardite, which is covered in turn with white calcspar, and then frequently carries copper—generally not in paying quantity, though in some of these fissures copper nuggets of thirty to forty pounds have been met with.

Most likely, this bed of felsitic breccia represents the upper end—the cap—of an injection of felsitic porphry, which, forced between the beds of the amygdaloidal melaphyr, followed their cleavage-lines, and, partly solidifying in its course, was subsequently broken up and surrounded by the liquid rock

masses pressing after it. Such a manner of formation is indicated by the highly fissured hanging wall of amygdaloid. The deposit is as yet exposed to a moderate depth only. Further developments will probably reveal a transition of the breccia into massive felsitic porphyry, such as occurs between the amygdaloid layers in the Ontonagon district; and perhaps the point will be found at which the erupted material ceases to cross the strata like a regular fissure-vein, and "switches off" upon a cleavage plane.

That the copper must have been subsequently deposited, is indicated by the fact that it only occurs on the planes of contact between the matrix and the porphyritic fragments, and occasionally in the matrix or cementing material itself; but never inside of the fragments. Moreover, the side veins in the amygdaloid hanging wall, which were formed simultaneously with the breccia, and apparently filled afterwards, contain copper, sometimes in considerable quantity.

New Publications.

THE Annual Report of Special Commissioner WELLS, of the Revenue, contains many interesting figures. Mr. WELLS estimates the total cost of the war to this nation at about $9,000,000,000; total immigration for the last fourteen years, about 3,000,000; present annual increase of population, 1,100,000; present estimated population, 39,000,000; annual increase of wealth, about $6,825,000,000; surplus of revenue for the fiscal year ending June 30, 1870, if present tariff and taxes continue, $124,000,000. The Commissioner advocates reduction of the income tax from five per cent. to three; addition of taxes on watches, silver plate, pianos, billiard tables, and carriages; repeal of licenses, except for bankers and manufacturers, and dealers in spirits, beer, and tobacco; repeal of taxes on gross receipts of transportation companies, and on sales of articles not specifically taxed. The aggregate of these reductions is about $26,000,000. Mr. WELLS then "pitches into" the tariff, and declares that, of the two thousand articles specifically catalogued, it is probable that at least one-third might be immediately placed upon the free list, without seriously diminishing the revenue, and with great benefit to the trade, industry, and morals of the country. Pig iron, salt, coal and lumber, hides and other raw materials, are mentioned in illustration of the alleged excessive rates of duty, and the Commissioner closes with a series of recommendations for the action of Congress.

The *Galaxy* for 1870 will contain the remainder of CHARLES READE'S capital story, "Put Yourself in His Place," which will run through the greater part of the year. This is good news to many readers. Nobody wants one of READE'S stories to stop. Perusing them in serial form is at once the most delightful, and the most tantalizing, of all occupations. Mrs. EDWARDS, ANTHONY TROLLOPE, PARKE GODWIN, RICHARD GRANT WHITE, JUSTIN MCCARTHY, DRS. DALTON and DRAPER, and a large editorial staff, will lend their names and pens to this volume of the *Galaxy*—every name a "star." We note in the January number, besides numerous good things of the ordinary kinds, one very good thing of a new kind, namely, a review of the current literature of England, France, and Germany, which we understand is to be a permanent feature of the magazine.

THE OVERTURE OF ANGELS is a dainty little volume, issued by J. B. FORD and Co., of this city, and containing a chapter of HENRY WARD BEECHER'S forthcoming Life of CHRIST. The portion selected, as the title somewhat fancifully indicates, is the story of the angelic visits which preceded and attended the birth of the Saviour. The exquisite typography and illustrations of the book are worthy of its theme. The same house publishes in book form the second volume of PLYMOUTH PULPIT, illustrated with a frontispiece, representing the interior of Plymouth church. The sermons of Mr. BEECHER, contained in this publication, are well worthy to be preserved in permanent form. Criticism on such subjects is not within the province of a scientific journal; but if any clergyman deserves to be heartily applauded by the votaries of natural science, or the representatives of industry, Mr. BEECHER has certainly earned that distinction, by his catholic sympathy with all progress, and his fearless defence of free thought and investigation.

Baculites from Colorado.

A LETTER FROM PROF. ROESSLER TO THE N. Y. LIBERAL CLUB.

CABINET OF PRACTICAL GEOLOGY AND MINING,
WASHINGTON, D. C., NOV. 15, 1869.

WE have received within the last few days several very interesting fossil shells, of the genus *Baculites*, from Colorado. They were discovered in the upper cretaceous beds, at a locality some thirty or forty miles east of the Black Hills of Dakota, and immediately beneath the tertiary formation of that region, at the *Mauvaises Terres*, celebrated for its interesting mammalian fossils and other remains. For the information of those interested in the specimens under consideration, who may not be acquainted with geology or palæontology, it may be proper to remark that not only the species to which they belong, but the genus, and even the entire family, including vast numbers of curious and beautiful shells, are extinct. Not a single representative of this interesting family (Ammonitides) is known to exist in any part of the world, at present, though the nautilus of our existing seas belong to an allied family of the same natural order of mollusks. Like the nautilus, these ancient fossil shells (when found in a state of good preservation) present a beautiful pearly lustre, and have the interior divided into many chambers, connected by a siphon. The last or outer chamber is much larger than any of the others, and originally contained the body of the animal. Behind this, the smaller chambers were filled only with gas (judging from what is known of the nautilus) to give buoyancy to the shells—a contrivance of nature, by which the specific gravity of the whole structure was probably made to differ little from the medium in which it lived, which was, in this case, the water of the ancient cretaceous seas.

As is generally the case with such fossil shells, the Colorado specimens have the interior filled with solid, stony matter, originally deposited there in the condition of soft mud at the time the shell was imbedded in the fine sediment at the bottom of the sea. The remaining portions of the shell itself retain the pearly lustre. The specimens on hand are imperfect; some three feet in length, and nearly one foot in circumference.

Every geologist will at once understand that the formation at the elevated point in Colorado from which these fossils were obtained was deposited at the bottom of the sea during that portion of the earth's history known as the cretaceous epoch; since which large areas of the American continent have been raised to their present position, above the ocean level. Such oscillations of the earth's surface are known to be in progress at the present time; the surface at some places rising and at others sinking, but so gradually that scarcely any perceptible change usually occurs in a single century.

MINING SUMMARY.

Nevada.

THE COPE DISTRICT.

A correspondent writing from Mountain City, December 15, of mining affairs in Cope District, says: "Considerable alarm was felt for some weeks past owing to the scarcity of flour, bacon, barley, and other staples. Within the past two days, however, the town has been made lively by the arrival of teams freighted with general merchandize. Our merchants are now all well supplied with everything necessary for a new mining camp, and are extremely liberal in their dealings with the miners. There is plenty of work here for all who desire to labor. The pioneer quartz mill of Atchison, Drew & Co., has been running for over two weeks, having stopped but once during the time and then only five minutes, to arrange some belting. It requires twelve hands inside to run the mill—six on a shift; a large number of men, however, are employed on the outside, breaking rock, etc. Mr. Canty is untiring in his efforts to hasten the completion of his mill. The building is already inclosed, and under the control of Captain Cook, who erected the Atchison & Drew mill. Mr. Mr. Canty hopes to be able to commence operations in about ten days at the furthest. I am happy to learn that the difficulty which has for some time existed in the Mountain City company, has been amicably adjusted; 1,500 feet of the 1,600 feet of the stock being represented at a meeting held to-day, at which J. W. Sellers was elected Superintendent and Thomas B. Hart, Secretary. Work has been commenced in real earnest, and in about one week more this mine will be able to furnish a sufficiency of ore to keep the ten-stamp mill of Atchison & Drew constantly employed. In my next I will be able to give you the returns from some of the second-class rock of this mine, as the mill commenced crushing it yesterday. The mill for a few days past has been crushing ore from the Hamilton mine, thirty tons of which yielded 130 pounds of bullion. A return has been received from a shipment to San Francisco of several tons of ore from the Crescent lode, which yielded $300 per ton. Work progresses on the Argenta, Keystone, Belle of the West, and other favorite mines, whilst upon others, equally as good, the names of which I have already given you, work is being pushed rapidly ahead. But few ledges have lately been discovered, as every available force is employed in taking out rock on those already taken up."

COAL.

The Virginia City *Enterprise*, December 17, reports that coal of a fair quality has been found about twelve miles northeast of the lower sink of the Carson. There are two stratums, about six feet thick, and separated by about nine feet of slaty sandstone. Not far from these coal veins is an immense deposit of petrified wood. In places along a ravine which passes through the locality, this petrified wood is to be seen piled up to the height of six or eight feet. This wood looks as natural as though only deposited one week ago, yet it is now all stone, solid stone; roots, trunk, branches, and all kinds of curiosities are to be found mixed in with this petrified wood, such as the the bones of various animals and fowls, pine nuts, etc.

A TUNNEL UNDER LANDER HILL AGAIN.

The project of tunnelling Lander Hill—for which several companies have been formed, but none of which ever accomplished anything beyond a handsome salary to a superintendent—has, says the *Reveille*, been revived again. The last company organized for the purpose is known as the Union Pacific Tunnel Company, which has just completed a survey of the ground. The survey was made by Mr. T. J. Read, who has also drawn an excellent map for the company. According to the map the tunnel will extend from a point near the foot of the Clifton grade to the center of Mount Prometheus, a distance of 1,000 feet. From the floor of the tunnel to the summit of the mount will be 1,500, which will afford drainage of 1,000 to 1,200 feet to the mines of Lander Hill. Between the mouth of the tunnel and its terminus in Mount Prometheus, the map shows some 150 ledges, nearly all of which it will intersect. Within the limits mentioned there are probably more than a thousand locations, but nearly all of the mines shown on the map have received some development, and are believed to be valuable property. We have not been informed as to the capital stock of the company, or of its plan of operations. The project of driving a tunnel through Lander Hill, in which there are a net-work of silver veins, would seem to present strong inducements for the investment of capital; and we hope it will be undertaken, skillfully managed, and carried to its consummation. It will be an inexpensive plan for ascertaining the character and value of Lander Hill. We shall all be the wiser, and, we trust, the richer for the Union Pacific Tunnel."

YANKEE BLADE.

The prospects of this District, according to the *Reveille*, are brightening. Many believe that it is going to be the most productive part of the Reese River District. A miner recently from there said he believed the Tuolumne would prove to be one of the famous silver mines of the State, for he knew enough about it to predict that it would yield millions. The Chase was also a superior mine, but he could not guess the reason for the singular management of the company which owned it. It seemed to him, he said, a kind of open-and-shut game; the mine would be worked one month and closed three. He thought it more perplexing than a Missouri tri-weekly saw mill, in which the saw went up one day and came down the next, and laid over Sundays. But he said, for all that, he knew the Chase was a "splendid mine." He spoke warmly also of the Maggie, and the Yankee Blade mine of the American Company, and of several others, the names of which have escaped us.

WYOMING DISTRICT.

Deputy Assessor Starling recently in from Wyoming District, brings encouraging accounts from the mining interests in that section which are thus condensed in the Elko *Independent*, Nov. 20: "Wood, water, and grass are abundant; the grass clothing the mountains with a rich and heavy growth to their very summits. Deer, mountain sheep, and grouse abound in great numbers, while the streams are full of trout. Among the principal ledges may be noticed the Bruno, Mira de Alta, Primrose, Sonoma, Madison, St. Jerome, Mountain Queen, Enterprise, Miner's Delight, and Mountain King. It is said that the smallest assay ever made from ore in this district was $384 20 in silver, and $12 in gold to the ton. The ledges thus far discovered and now being worked are mostly situate in Silver mountain, which is back of Bruno City, on Crystal creek, a tributary of the Owyhee. But few men are as yet regularly employed in the mines, as the district is new and as yet but superficially explored. A fine field is here offered for the prospector and miner, and next season will undoubtedly show mines that will attract great attention on account of their richness, and will add another important source of revenue to the bullion-producing districts of the Silver State."

FROM EUREKA.

A correspondent at Eureka, December 13, says: "Both smelting furnaces are running and turn out bullion at a good rate. Other parties have begun the grading for a mill. The main street of the town of Eureka contains a number of large buildings, which are occupied as stores, saloons, restaurants, lodging-houses, etc. Prospectors swarm over the hills, and new locations are made and recorded almost daily. The mines look well; the more you look at them the better they look to you; and several of them are producing large quantities of ore. There are already some six families here, and everything is settling down for a permanent camp. We anticipate lively times for all hands in the spring."

THE BATTLE MOUNTAIN MINES.

A correspondent of the Humboldt *Register* thus writes from Galena, December 15, of this locality: "Our mines are looking better every day as work on them progresses, and a number of lots of ore sent below have yielded the most satisfactory results. The greatest drawback we experience is the want of confidence by miners, in parties below, who advertise themselves as purchasers of ore. I hear of many instances where miners have been outrageously swindled by these ore sharpers or experts. Ores are unlike other commodities, from the fact that it requires a vast deal of experience and considerable knowledge of minerals to determine their real value, hence they offer a tempting bait to the dishonest dealer. Denton & Co. have just discovered a new and rich galena ledge, located about a mile east of town, and supposed to be an extension of the Cherokee ledge, owned by Smith & Co. The ore yields a very high assay and the ledge is large and well-defined. Near Butte mountain, Leidolph & Co. have recently opened one of the richest copper ledges ever discovered in the State. I am informed by reliable parties that the ore assays as high as 40 per cent. in copper, with a trace of silver, and the specimens I have seen from it certainly indicate that it is exceedingly rich."

Colorado.

DISASTER AT THE BRIGGS MINE.

A correspondent of the Denver *News*, writing from Central City, Dec. 4, gives the particulars of a recent accident in the Briggs mine, by which several persons were killed and wounded. Says the correspondent: "We have to-day had one of the greatest accidents in the Briggs mine that has ever been known in Colorado. Three men are killed and four seriously injured; one it is thought cannot survive many hours. The Briggs mine, like most others in this country, is worked by underhand stoping; thus leaving an open space, or cavern, over the heads of the men where they are working. This is protected by beams of timber termed a stull. Four of these stulls, I am given to understand, were in, and the fifth being put in, when this sad accident happened; the first falling away and carrying all the others with the one last put in, on which the men were working; hence the catastrophe, which was caused by not putting in these stulls in a proper manner to keep any weight that might come on them by the sides of the mine caving in. The attention of the underground agent had been repeatedly called to these stulls and the manner in which they had been put in, but all to no purpose, as he would have his own way of doing the work, and these are not the first lives that have been lost by his presumption and neglect. If mining companies intrust the management of their underground workings to men who do not know their work, for the protection of life and property, it is time that the legislature of Colorado should take the thing into their own hands and appoint practical men to examine the mines to see that they are safe for working in. But I fear if this was the case a great many of the mines in this district would be found to be in a very bad condition and unsafe to work in. You are aware that most of our large mines are getting down from five hundred to six hundred feet, which is too deep to be worked upon at an angle of from forty to forty-five degrees, and the wall-rock of a very friable nature. It is continually giving way, and will be doing so as long as the mines are worked as they are, and no one's life will be safe to work in them. In order to remedy this, I would advise all mining companies to sink down their shafts and open up their drifts at every sixty or seventy feet, and then back-stope their lode from one level to the other. This would enable them to leave all the wall-rock and other poor dirt in the stull, instead of sending it to the surface, as at present. I am positive they will find this to be much the cheapest mode of working, and the safest for life and property. P. S. Since writing the above another of the men is dead, and slight hopes are entertained, I am informed, of one or two others."

ITEMS FROM CENTRAL CITY.

The following are from the *Register*: "Ed. Moore is running the old Wilson mill on ores of the Gregory second lode. The ores are taken out by himself and partner. H. B. Brastow has put a water tank in the centre of Lake Gulch, and has trenched it so as to secure what water passes down the gulch. This he connects to his mill, hoping to obtain a winter's supply of water."

The Colorado *Herald* says: "R. B. Griswold has returned from White Pine and has gone to work on Chicago creek for a Chicago company. He is located in Cascade district, and has taken in supplies for the winter. Two other companies are working in Cascade district and will continue all winter. The three stamp mills of Mountain City, which have for some time lain idle, are again to be put in motion. The Kip & Buell mill, which has not been in operation for a year and a half, is now running its twelve stamps on ore from the 'Foot & Simmons' and 'Stonewall' lodes, near the Gregory and Bob Tail. Billy Fuller lately leased this mill, and, having put it in order, started up yesterday."

THE LEAD RESOURCES OF COLORADO.

The Georgetown *Miner* says in this connection: "The deposit of

argentiferous galena in Hall gulch, Park county, is on a scale that would surprise the most enthusiastic geologist and mineralogist in the world, and create profound astonishment among miners who have delved in 'depths profound' for a life-time. The per cent. of metallic lead contained in the ore deposit of the veins in the above gulch is large and the per cent. of silver generous. The mineral resources of Hall gulch alone, and the facilities for manufacturing salt in the South Park, furnish sufficient inducements to capitalists to construct a narrow gauge railway from Denver to Park county at the earliest possible day. The lead resources of Summit, Clear Creek and Gilpin counties constitute an empire of wealth that clearly demands the generous consideration of capitalists. That a clean margin of profit can be obtained on the shipment of lead riches alone over and above the cost of mining, dressing, treatment and shipment, we shall be able to demonstrate by facts and figures in a short time."

MINING IN SUMMIT COUNTY.

The same paper has the following intelligence from Mr. F. C. Bradley, recently from the Summit county mines: "Work on the Napoleon lode is revealing an unusual deposit of ore in the crevice. Milner & Black are working with good results on an extension of the Cooper lode, situated on Collier Mountain. They have unearthed a solid vein of mineral of great width. George O'Connor is running an independent Norwegian snow-shoe mail line from Breckenridge to the mines on Snake river, at the expense of the miners. The reduction works of the Sukey silver mining company on Snake river are completed."

THE GOLDEN CITY COAL MINES.

The *Transcript* says: "We paid a visit yesterday to the Golden City coal mines and found matters there progressing favorably. The hoisting apparatus is all in working order and is now raising the debris from the shaft as it is being sunk. The power used is a 12-horse power engine. The workmen have about six feet farther to go down on the shaft, and have commenced drifting towards the coal as they go down. From the dip of the vein above they should be about ten feet from the coal on the west. It will be but a few days now before they will be able to take out coal in any quantity. Coal is being now taken out of the old drift on cars by way of the drain drift, but they are unable to near supply the demand as teams have already commenced coming from Denver and elsewhere for coal. By the middle of next week we expect to see lively times at these mines."

THE SMELTING WORKS.

The same paper says: "Matters are looking lively on the north side just now. Messrs. Bertenshaw & Parker are putting in a pent-stock and water wheel at their smelting works to furnish power for their machine-shop, blower, and other machinery."

BULLION AT THE DENVER BANKS.

From the Denver *Tribune* we learn: Warren Hussey received from the mint on the 10th a lot of gold bullion of the coin value of $8,250, the Colorado National received gold bars valued at $3,196, and the First National $1,163 worth.

BULLION SHIPMENTS.

According to the Central City *Herald*, the following are the shipments of gold for the month of November, 1869:

	Currency.	Coin.
Warren Hussey	$60,500	$48,500
Rocky Mountain National Bank	55,000	44,000
J. B. Chaffee & Co	35,000	28,000
Total	$150,500	$120,000

Gold at an average premium of 125.

The shipment for the corresponding month in 1868 was as follows: Currency, $164,500; coin, $114,500; showing an actual increase over November of last year of $6,000 coin.

Montana.

REPORTED NEW GOLD STRIKE—GREAT EXCITEMENT.

A correspondent of the Deer Lodge City *New Northwest* newspaper, writes in the following enthusiastic style relative to a reported rich gold strike at Cedar creek, near Missoula: "A big stampede is now going on to Cedar creek, a stream putting into the Missoula river about sixty miles below here from the west side. The mines are up the creek twelve miles and are said to be rich. The creek has been prospected for ten miles, and from twenty-five cents to two dollars and fifty cents to the pan has been found the whole distance. Sixty claims below and thirty above discovery were staked at last accounts, and as no one can get ground unless there in person to record it, every one who can is off to the golden land. Hotel-keepers, merchants, clerks, idle men and loafers, are all gone. I have talked with several parties just in from there, and they all agree in saying that it is the biggest thing they ever saw in Montana. I know nothing of it myself, only what I have heard. The creek is several miles long and promises to be a big camp. Louis Barrette, one of the discoverers, was in town to-day and had some of the gold with him, and it looks much like the gold from old Kootenai, coarse and well washed, and of a dark yellow color. A town has been laid out and called Louisville. As everything is all of a bustle here I am not prepared to give you much of a letter."

NEWS FROM PHILLIPSBURG.

Mr. Ben. Degenhart, just in at Deer Lodge City from Philipsburg, reports, says the *Independent*, December 4, matters at that place as presenting a somewhat improved appearance. Some fifty men are now engaged in taking rock from the Mountain Queen, Speckled Trout, Poor Man's Joy, and Eastern Comanche lodes. A number of men are also engaged in constructing wagon roads to the various mines. A mill man has made a proposition to erect a mill this winter for custom work, if 5,000 tons of rock at $20 per ton will be guaranteed to him. A meeting of claim holders was held and the proposition accepted. The contract has not yet been closed, but doubtless will be in a short time. The machinery for Cole Saunders' concentrator is expected daily; that for the James Stuart mill is now on the ground. It will take but a short time to place it in proper position, when this fine mill will again be put in motion.

SUSPENSION OF MINING.

As far as we can learn, says the same paper, all placer mining is suspended for the season in Deer Lodge county. The season just closed has been a most disastrous one to miners, and, in fact, to all classes. Every indication at present betokens an abundant fall of snow the present winter, which almost guarantees "flush times" the coming summer. Already there is much more snow upon the mountains than there was at this time last year. Indeed, well-informed men assure us, that there is nearly as much as at any time last winter. We hope they are not mistaken, for never was there a time when water was so badly needed in this Territory.

MINING AT PILGRIM BAR.

Operations at this point are likewise suspended for the present According to the *Independent* the miners of Pilgrim Bar have prolonged mining operations far beyond the expectations of all who have been accustomed to the short mining seasons of Montana. About six weeks ago there came a cold spell, which unnerved all the miners of Pilgrim Bar except Messrs. Catching, Smith & Co., who are the fortunate possessrs of some of the richest mines on that very rich bar. This company, however, undaunted by either storm or cold, pushed on their mining operations until the 25th of November, at which time they closed up for the season. The result of this six weeks' operation has been a gross yield of over $14,000, and a net profit of over $9,000. Where in any section of the country can a six-weeks' footing up of winter mining compare favorably with this?

LINCOLN GULCH.

D. W. Culp, the discoverer of Lincoln, furnishes the following notes to the *New North-West*: "Thers are about one hundred men in the camp, the large majority being out prospecting. The lower drain ditch is completed. Parties are prospecting Moose creek, opposite Lincoln on the Blackfoot, below Kennedy's road. Seven claims in Lincoln will be worked all winter, they being drift diggings, and the Spring gulch ditch furnishing the heads of water ample for the purpose. These claims are: No. 31, Culp & Co.; No. 32, Buck & Co.; No. 33, Linguist & Co.; No. 34, Nelson, Lawson & Co.; No. 35, Geo. Muck & Co.; No. 36, Miller & Co.'s old claim, and No. 37, Taylor, Young & Co. The snow is already quite deep on the range this side of Lincoln, and plenty of water is anticipated."

THE SILVER BOW DITCHES.

The Deer Lodge *New North-West*, Dec. 16, says: "Mr. R. Campbell, who has a contract of four-and-a-half miles on the Robinson, Turner & Neal ditch at Silver Bow, gives us the following concerning it: The ditch will be fifteen miles long, carrying water from the left fork of Silver Bow and Black Tail Deer to Rocker Hill and old McMinnville Bar. Its capacity will be 700 inches. The streams will furnish three hundred inches for three months, and run as low as 100 inches in ordinary seasons. It was commenced Nov. 20. Forty men are now at work. Mr. Campbell employs twelve men, who are averaging four rods per day to the hand. It is nearly all let out in small contracts, and will be completed by May 1st, 1870. There are two flumes—one 34 and one 26 rods. The estimated cost is $14,000. All but three miles of the Miners' ditch are dug. It is twenty miles long, has a capacity of 700 or 800 inches, will cost $45,000, and be completed May 1st."

DEVELOPMENT OF THE CROW CREEK MINES.

Quartz development about Radersburg is most promising this year. The Virginia City *Capital Times*, Dec. 6, says: "The Leviathan lode is sunk on to the depth of 125 feet, and from runs on an arastra never less than $90 per ton has been realized, except when running second class ore, when $60 per ton was the yield. The property is owned by Messrs. Blacker, Keating & Ohlman. The Keating lode, owned by Keating and the Blacker Bros., which is sunk on about 125 feet, has also yielded uniformly not less than $90 per ton. The Robert E. Lee lode, owned by John Shears, developed 50 feet with a four-foot crevice, yields $45 per ton by an arastra, without any selecting. The Iron Clad lode, owned by John Shears & Co., down 50 feet, has yielded $37 50. A quartz district ten miles above Radersburg on Crow Creek, is also developing most favorably. Among other lodes is the Quandary, 28-foot crevice, with facilities for tunneling by which the lode can be reached 200 feet from the surface by a tunnel 100 feet long. This lode, notwithstanding the great width, is said to prospect as well as those above named, on which actual working tests have been made by arastras. James Nave & Son's five-stamp mill starts up to-day, and we hope to be able to get reports from there at an early day. Three ditches are now constructed for supplying this camp with water another year, and a fourth is now being dug that will deliver its water 70 perpendicular feet higher than either of the old ones, by which much of the ground may be profitably worked another year that has heretofore been above the ditches. This ditch will be completed in February. Those best informed are confident of the future, both in vein and placer mines."

Pennsylvania.

THE COAL TRADE.

The Philadelphia *Ledger*, December 27, says: "The anthracite coal trade has very nearly ceased for the present year of 1869. At a number of the mines work was stopped two or three weeks ago, leaving in operation only those having contracts for the delivery of coal to fulfil, and a day or two before Christmas even those ceased working, not to resume until the 3d of January. So that there will be little to add to the grand total of the current year's production. The supply of coal seems full all around. At New York, Boston, and all of New England, Philadelphia and the South there is no complaint of scarcity, though at some points it is complained that prices are not as low as they should be under the reduced prices of breadstuffs, some kinds of provisions, and most descriptions of dry goods. If wages have heretofore necessarily been high at the mines by reason of the high cost of living, they should come down as this cause diminishes, and that is the general expectation as regards coal production in 1870. Coal operators will also, probably, be induced to abate a little of former profits, and the carrying companies, by reason of increased competition for the trade, will no doubt be compelled to come down some in their toll and freight charges. All the indications, therefore, seem to point to lower prices for coal next year, and as lower prices are usually attended with increased consumption, we naturally calculate on a largely increased percentage on the usual annual production of anthracite coal, and the more especially as there has been little, if any, increase this year in that description of coal. Whatever increase in coal production there may be is to the credit of bituminous coal. There are no precise data for the annual production of 1869, but it will not vary much from 14,000,000 tons. The coal tonnage of the Reading Railroad Company for the week ending on the 22d inst., was 57,014 tons, against 84,235 tons the previous week, and 263,510 tons since the 1st inst.—the beginning of the company's fiscal year—against 168,094 tons to corresponding time in 1868. The trade by the navigation is over. Very little coal has been received at Port Richmond, and but few shipments are now making. To the eastward there is nothing doing, and southward, except to open ports, vessel masters are tempted to load only by increased freight charges. The price of coal by the car load in the Schuylkill region, intended for consumption in this city is $3 50 per ton. At Port Richmond the prices are, for Schuylkill red ash, $5 50@5 75; white ash lump, $5@5 25; steamboat, $5@5 25; broken, $5; egg, $5@5 25; stove, $5 25@5 50; and chestnut, $4 75. The trade may be quoted dull, except for stove coal."

BUSINESS OF THE BALTIMORE AND OHIO CANAL.

The Cumberland (Md.) *Alleghanian* says: Navigation on the canal has closed for the year 1869. It is gratifying to know that the boating season just closed has been the most successful since the first opening of the canal, and encourages the hope that the most sanguine anticipations of the early friends of the great work are to be realized at no distant day. From the figures given below, taken from the Collector's books at this point, it will be seen that there were 6,039 boats dispatched during the year, carrying 663,491.08 tons of coal, being an excess of 1,556 cargoes and 178,421.02 tons over last year. Notwithstanding this increase (and a proportionate if not larger increase on the B. & O. Railroad) we are assured that a number of the Mining Companies have been unable to get to market as much as they desired and the demand for our semi-bituminous coal required. Should no unforeseen circumstances interpose to prevent it, the next year's business will show a still larger increase.

Coal dispatched from the Cumberland Office of the B. & O. Canal, for the years 1868 and 1869.

	1868—Tons.	1869—Tons.
March	.....	3,080.00
April	54,005.16	77,382.10
May	50,161.13	84,110.07
June	70,081.19	90,636.08
July	38,723.19	86,921.00
August	66,979.46	83,868.10
September	59,950.10	82,464.18
October	72,699.04	91,903.14
November	65,633.04	63,011.10
December	6,834.15	112.11
	485,070.06	663,491.08
		485,070.06
Increase		178,421.02

Of the shipments of coal for the year 1869, 637.614.13 tons were dispatched to Georgetown and Alexandria; 5,071.15 to Williamsport; 8,936.14 to Antietam; 7,391,14 to Knoxville; 4,476.12 to other points. There were also sent forward 546 tons of pig iron, 111.05 tons of leather, 352,294 feet of lumber, and 11 tons of miscellaneous articles.

Waybills issued to boats in 1869	6,039
" " " 1868	4,483
Increase	1,556

Of the boats dispatched, 1,183 were by the American Company, 658 by the Borden, 1,175 by the Central, 946 by Consolidation, 742 by Cumberland Coal and Iron, 273 by George's Creek, 391 by Hampshire & Baltimore, 259 by Midlothian, 169 by Maryland, 169 by Savage Mountain, 211 by Cooke Mines; 21 with gas coal; eight other cargoes. The tolls levied on the boats and cargoes dispatched from this point amounted to $318,714 38, of which $301,499 94 were collected at Cumberland office, and $17,214 44 at other points. The ascending trade to this point, embracing flour, grain, fruits, hides, salt, groceries, etc., is also steadily increasing. The tolls upon it collected for the past year amount to $2,978 97.

Michigan.

REVIEW OF THE IRON TRADE FOR 1869.

The Marquette *Mining Journal*, December 18, says: "A week or two more will close the ore business for the season, on the M. & O. R. R. Since the close of navigation, trains have been running to supply the local furnaces for the winter—about 20,000 tons being required. In the meantime the C. & N. W. Co. have been filling their docks at Escanaba, and until the furnaces are all supplied, and we are able to ascertain the amount in the Escanaba docks, it will be impossible to give the exact product for the year. As we have before stated, however, it will not vary much from 725,000 tons. These figures are certainly most gratifying, when we take into consideration the fact that the season was most unfavorable for successful mining, owing to the continued rains which prevailed during the summer. Had the season been ordinarily favorable, the aggregate would undoubtedly have been swelled to at least 800,000 tons. The increase over last year, however, in view of the new mines just opened, give a reasonable assurance of our being able by this time next year to record one million of tons for 1879! All the old mines will or can add to their production, while the new ones alone will very nearly make up the amount necessary to reach that result. All this, and still it is the opinion of candid iron men that the iron mining interest of Lake Superior is in its infancy. Every year brings to light new and valuable deposits, and there still lie hidden in our hills and mountains, we honestly believe, mineral wealth by the side of which our present mines will sink into comparative insignificance. Ten years hence Lake Superior will furnish the bulk of the iron product of the United States!"

COPPER PRODUCTS.

The following products are reported for November: Hecla mine—Stamps, 336 tons; produced and shipped for 1869, in excess of monthly products published, 130 tons, 923 lbs. Calumet mine—Stamps, 277 tons; produced and shipped for 1869, in excess of monthly products published, 105 tons, 1,244 lbs.

Arizona.

We are indebted to the Prescott *Miner*, December 4, for the following mining items:

"WICKENBURG.—A private letter from A. Barnett, merchant of Wickenburg, of date November 29, says that the Vulture Mining Company's 40-stamp mill, at Vulture City, in this county, commenced work on the morning of the 28th. The letter also states that heavy rains had fallen at Wickenburg. Charles Otten, a miner at work in a gulch in Hassayampa District, found, one day last week, a piece of gold worth $18.

"UPPER LYNX CREEK.—From a party of placer miners from Upper Lynx creek, we learned that they had been making small wages with a rocker, on a bar a short distance below the canyon. They have started back and expect to wash out at least five or six dollars a day to the hand. They said the snow was very deep in that part of the mountains.

"LOWER LYNX CREEK.—Placer mining will soon be brisk upon the lower portion of this auriferous creek. The Bashford mining company will start in next week, and work will also be resumed in Jackson, Lovejoy & Co.'s hydraulic diggings. Jos. Revoirs and company have already started to work. The Mexicans, at work near the old camp, are doing well.

"BIG BUG.—The mill is still idle, but plenty of rich ore is being taken out of the mines. Placer miners were preparing to go to work.

"STERLING.—C. V. Beseler, the new Superintendent of the Sterling, is, we learn, well pleased with the looks of the mine. He will start the mill in a few days."

BUSINESS AND PERSONAL.

[*Short notices in this column fifty cents per line each insertion.*]

GLYNN'S ANTI-INCRUSTATION FOR STEAM BOILERS.—The only reliable article for removing and preventing incrustation. No foaming, and does not attack metals of boilers. Liberal terms to agents. C. D. FREDRICKS,
Dec. 21, tf. 587 Broadway, New York.

PYRITES WANTED—CONTAINING GOLD, SILVER, OR COPPER. Address MICHIGAN CHEMICAL COMPANY,
Dec. 23-2t Jackson, Michigan.

MARKET REVIEW.

The Coal Trade.

NEW YORK, Dec. 31, 1869.

WHOLESALE.—The anxiety of wholesale and retail dealers and business men generally, to close up their affairs for 1869, leaves almost nothing to report in the coal trade for the past week. The auction sale was the all absorbing topic, and the slight advance in prices realized, was hailed with great satisfaction by the trade, and it generally imparted a firmer feeling to the market. As we stated would be the case in our last, the large sizes advanced, while the stove declined. The small quantities of large sizes offered, and the demand coming mostly from large steamship lines, who do not higgle about 15 or 25 cents per ton when they are in want of coal, was the cause of the advance. The outside market generally remains about the same as reported a week ago. The late warm weather has allowed considerable quantities of coal to pass through the various canals, which would otherwise have been detained at points where frozen in, had the cold weather lasted. This has thrown some twenty or thirty extra cargoes of Schuylkill and other coals in the market, awaiting buyers.

AUCTION SALE OF SCRANTON COAL.

A FIRM MAKET AND ADVANCE IN PRICES.

The Delaware, Lackawanna and Western Railroad Company to-day sold at auction 70,000 tons of Scranton coal. John H. Draper was the auctioneer. There was a large attendance of buyers and bidding was spirited. The steamboat companies were large buyers. Stove coal sold at lower figures than at the last sale, but all other kinds advanced.

The first bid for egg coal was at $4 50, and the price was run up until the first lot was knocked down at $5 65. The average price obtained was $5 32½. Steamboat coal started at $4 30, and sold up to $4 87½; while grate started at $4 80, and advanced to $5 17½.

The following table gives the highest and lowest prices obtained, with a comparison of prices obtained at the November sale:

	Dec. 29.		Nov. 24.	
5,000 tons lump	$4 35	@4 30	$4 05	@4 50
10,000 tons steamboat	4 87½	@4 30	4 02½	@4 25
10,000 tons grate	5 17½	@4 80	4 30	@4 35
10,000 tons egg	5 65	@5 20	5 15	@5 32½
25 000 tons stove	6 25	@6 00	7 35	@7 15
10,000 tons chestnut	4 55	@4 15	4 15	@4 22½

RETAIL.—The large companies who are selling family sizes of coal, delivered, at $7 50 @ $8, report a heavy business doing, notwithstanding the warm weather. Other dealers who get "big prices" complain of the warm, unseasonable weather, and very dull business.

PRICES.—Our quotations will be found duly corrected for this week. The new prices for January will not appear until our next issue.

FREIGHTS.—Vessels are in good supply, and freights have declined from ten to twenty cents during the past week.

ANNUAL COAL TRADE REVIEW.—The Editor of the Coal Department would at this time express his sincere thanks to his many correspondents for their kind and gentlemanly attention and diligence during the past year, and would request from each a final report of the amount of coal transported for 1869, at as early a date as practicable, for the annual review of the trade to be published in January.

SHIPMENTS OF THE FRANKLIN CO. FOR 1869.

DECEMBER 30, 1869.

TO THE EDITOR—SIR: In looking over your statement of coal transported over L. V. R. R. Co., for 1869, I see our company is entirely overlooked, and your total from Wyoming Region exactly 20,000 tons less than the L. V. R. R. Co.'s statement. Our company heads the list invariably, and we shipped during the year 55,706 01 tons.

E. P. WILBUR,
President Franklin Coal Company.

The following table exhibits the quantity of Coal passing over the following routes of transportation for the week ending December 25, 1869, compared with the same time last year:

COMPANIES.	1868. WEEK.	1868. TOTAL.	1869. WEEK.	1869. TOTAL.
Phila. & Reading R.R.		3,787,082		3,688,905
Schuylkill Canal		987,628	1,694	698,498
Lehigh Valley R. R.		2,225,630		2,075,296
Lehigh and Sus. R. R.	15,411	891,479	27,197	975,417
Lehigh Canal		989,947		605,144
Scranton North	8,213	603,623	9,805	443,719
" South	24,949	1,009,971	28,730	1,033,194
Penn. Coal Co., rail	14,310	903,630	14,154	933,717
" " " canal		29,005		18,767
Del. and Hudson, rail			7,912	179,458
" " canal, north		1,640,118		1,306 280
" " " south			1,000	122,657
Shamokin	4,429	460,168		462,0?5
Trevorton	721	4,704		36,808
Short Mountain		122,709		104,661
Lykens Valley Canal Co.	873	86,639	155	28,065
Huntingdon & Br'd Top	5,720	278 463		249,028
Wyoming South		349,420		384,706
" North		89,152		76,308
Williamstown, Coll'y	1,297	175,319	2,160	197,970
P. N. Y. C. & R. R. Co.			3,554	9,960
Total	75,923	14,0-1,887	96,421	13,558,503
1869		13,538,503	75,92-	
Decrease year		523,384	20,498	In. week.

Schuylkill Coal Trade.

Report of coal transported over the Schuylkill Canal for the week ending Thursday, December 23, 1869.

	Tons. Cwt.
From Port Carbon	687 00
" Pottsville	
" Schuylkill Haven	1,006 12
" Port Clinton	
Total for week	1,693 12
Previously this year	696,793 01
Total	698,486 13
To same time last year	987,6,7 10

Report of Coal transported via the P. and R. R. for the week ending Dec. 23, 1869—less coal carried for Company's use, and Bituminous Coal:

For week	46,843 03
Previously this year	176,494 04
Total,	223,337 07
Same time last year,	178,093 00
Decrease,	48,244 07
Amount sent same week 1868,	43,041 00

Report of coal transported on the Philadelphia and Reading Railroad for the week ending Thursday, December 23, 1869:

From St. Clair	16,721 02
" Port Carbon	5,976 01
" Pottsville	4,599 05
" Schuylkill Haven	9,6?8 16
" Auburn	1,449 02
" Port Clinton	8,483 08
" Allentown and Alburtis	509 09
" Harrisburgh and Dauphin	7,734 05
Total paying freight	54,577 08
Coal for Company's use	2,436 14
Total for week	57,014 02
To same time last year	207,495 04
Total	264,509 06
To same time last year	160,565 05

Harrisburgh and Dauphin Coal Trade.

The following is the amount of Bituminous Coal transported via the P. and R. R. for the week ending Dec. 23, 1869:

	Tons.
For week	7,734 05
Previously this year	22,463 09
Total,	30,197 14

Report of Coal Transported over Lehigh Valley Railroad

For the week ending December 25, 1869, and previously this season, compared with same time last year:

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	PREVI'S Y. Tons. Cwt.	TOTAL. Tons. Cwt.
Total Mahanoy	3,806 19	23,153 00	26,959 19
" Beaver Meadow	7,463 14	33,029 07	40,493 01
" Mauch Chunk	56 00	66 13	122 13
" Upper Lehigh			
" Hazleton	18,168 15	66,295 04	84,463 19
" Wyoming	10,123 26	27,185 04	37,309 00
Total Anthracite	39,619 04	149,729 08	189,348 12
Bituminous Coal recv'd from Cata. R. R.			
N. C. R. R.			
E. P. R. R.	1,743 00		1,743 00
P. & N. Y. C. & R. R. Co			
Fall Creek			
Schroeder			
Towanda			
Total by rail and canal	41,362 04	149,729 08	191,091 12
Same time last year	30,764 02	116,158 10	146,922 12
Increase	10,598 02	33,570 18	44,169 00
Decrease			
Forwarded East from M'h Chunk by rail	35,351 07	139,916 02	175,267 09
Same time last year	30,139 01	102,131 18	132,270 19
Increase	5,212 06	37,784 04	42,996 10

RECAPITULATION.

Forwarded East from M'h Chunk by rail	35,351 07	139,916 02	175,267 09
Delivered at M'h Chunk	65 16	48 01	103 17
Delivered on line of road above Mauch Chunk	250 02	325 08	575 16
Delivered above M. Chunk for use of L. V. R. R.	600 00	2,056 18	2,736 18
To N. C. R. R., at Mount Carmel		115 00	115 00
Forwarded North from L & B. Junction	3,204 10	6,345 09	9,549 19
To L. & S. R R., at P'n Hav., for railroad			
Do. for canal			
Do. Packerton for rail	77 03	267.01	344 04
At M Chunk for canal		655 09	655 09
Total Anthracite	39 619 04	149,729 08	189,348?12
Bituminous Coal	1,743 00		1,743 00
Total all kinds	41,?02 04	149,729 08	191,091 12

Lehigh and Susquehanna Railroad.

REPORT of Coal Shipped South for the week ending Dec. 25, 1869.

WHERE FROM	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
Wyoming.		
Parrish & Thomas	1,323 19	51,054 06
New Jersey Coal Co	169 07	24,?64 04
Lehigh Luz. Coal Co	946 15	37,?30 17
Pine Ridge	5 05	28,501 19
Germania Coal Co	278 19	21,010 17
Franklin Coal Co		62 04
Mocanauqua Coal Co		2,?50 04
West Pittston Coal Co		52 07
Wilkesbarre C. & I. Co	10,492 10	411,?56 07
Del. & Hud. Canal Co	1,811 06	39,42 2 13
Mineral Spring Coal Co	621 08	16,919 15
H. B. Hillman & Son	46 13	9,?05 00
Bowkley, Price & Co		1,?46 00
Wyoming C. & T. Co		2,?91 11
Henry Culliery	288 19	24,227 03
J. H. Sweyer		3,446 00
Everhardt Coal Co	974 01	34,?58 08
Morgan Mines		49 02
Shawnee	442 11	37,038 08
Lances Colliery	949 12	11,944 13
Albrighton, Roberts & Co		7,117 03
New England		9,150 03
Consumers Coal Co	42 08	6,721 14
Reynolds	1,?46 10	17,?84 18
Gaylord	?54 08	6,?87 10
Maltby		1,?42 12
Nottingham	634 18	17,?74 05
Total Wyoming	21,029 09	8?6,040 15
Upper Lehigh.		
Upper Lehigh Coal Co		77,261 17
Total Upper Lehigh		77,261 17
Hazleton.		
A. Pardee & Co	11 07	29,567 18
Linderman & Skeer		25 05
Sharpe, Weiss & Co		13,026 05
W. S. Halsey & Co		1,273 01
Harleigh Coal Co		11,079 08
C. B. Markle & Co		12,409 06
Ebervale Coal Co		12,?14 09
Stout Coal Co		6,578 19
Buck Mountain Coal Co.		18,?37 11
Coxe Brothers & Co		5,144 05
Ashburton Coal Co	23 09	2,637 16
Highland Coal Co		1,453 16
Pardee, Bros. & Co		3,0?5 16
Jeddo Coal Co		3,1?3 19
Mount Hall		
Other Shippers	26 08	467 12
Total Hazleton	61 04	123,815 06
Mauch Chunk.		
Lehigh Coal & Nav. Co.		
Summit Mines	6,166 16	198,265 00
Room Run Mines		53,033 18
Total Mauch Chunk	6,166 16	251,298 18
Total Mauch Chunk Region	6,166 16	251,298 18
" Hazleton "	61 04	123,815 17
" Upper Lehigh "		77,261 17
" Wyoming "	21,029 09	826,040 15
Grand Total	27,197 09	1,275,416 16
Corresponding week last year	15,411 18	1,028 062 00
Increase	11,785 11	247,354 16
Decrease		
Forwarded South from Mauch Chunk	26,578 09	911,510 07
Delivered on line of Lehigh & Sus'na R. R., above Mauch Chunk	377 19	34,287 12
Delivered to Lackawanna & Bloom. R. R., at Plymouth Bridge	243 01	18,151 02
Delivered to Lehigh Valley R. R. Co., at Sugar Notch		5,151 03
Delivered at Coal Port, for shipment by Canal		305,316 12
Total	27,197 09	1,275,416 16

Penn. and N. Y. Canal and Railroad Co.

REPORT of Coal Transported via. the Pennsylvania and New York Canal and Railroad Company, for week ending December 25, 1869:

Anthracite	3,554 03
Previously this year	6,405 13
Total	9,959 16
Bituminous	3,177 00
Previously this year	8,919 00
Total	12,096 00

Cumberland Coal Trade.

B. & O. RAILROAD.

The shipments over the Baltimore & Ohio Railroad for the week ending Dec. 24, 1869, were as follows:

From Georges Creek via Piedmont.	Tons.
Consolidation Co	278 06
Borden Co.	212 10
Balt. & Hampshire Co.	2.9 02
Maryland Co.	
From Eckhart R. R.	
C. C. & I. Co.	471 12
Total	1,191 10

Prices of Coal by the Cargo,

[CORRECTED WEEKLY.]

	AT NEW YORK, Dec. 31. R. A.	W. A.	AT PHILADELPHIA, Dec. 30. R. A.	W. A.
SCHUYLKILL.				
Lump	$— —	$5 50	5 50	5 50 to 5 75
Steamer	— —	5 50	— —	5 00 to 5 25
Broken	— —	6 00	— —	— — to 5 —
Egg	7 50 to — —	6 50	— —	5 00 to 5 25
Stove	7 00 to — —	7 00	— —	5 25 to 5 50
Chestnut	5 50 to — —	5 00	— —	4 75 to — —
Pea	— —	— —	— —	— —
LEHIGH.				
Lump	— —	7 10	— —	
Steamer	— —	— —	— —	— —
Broken	— —	6 60	— —	— —
Egg	— —	7 00	— —	— —
Stove	— —	6 10	— —	— —
Chestnut	— —	6 10	— —	— —
Pea	— —	— —	— —	— —
SPECIAL COALS.*				
Diamond Vein	R. A. 7 50		— —	— —
New England	" — —		— —	— —
Locust Dale	W. A. 7 00		— —	— —
Honey Brook, Le'h	W. A. 6 00 to 7 00		— —	— —
Spring Mount	" " 6 00 to 7 00		— —	— —
Sugar Creek	" " 6 00 to 7 00		— —	— —
Sugar Loaf	" " 6 00 to 7 00		— —	— —
Fulton	" " 6 00 to 7 00		— —	— —
Stout	" " 6 00 to 7 00		— —	— —
Old Comp'y's	" " 6 00 to 7 00		— —	— —
Cross Creek	" " 6 00 to 7 00		— —	— —
Chauncey	" " — —		— —	— —
Girardville	" " — —		— —	5 00 to 5 50
McMichael	" " — —		— —	5 00 to 5 50
Duncan	" " — —		— —	5 50 to 6 00
Shamokin	" " 7 50		6 50	— —
Lykens Valley	" " — —		6 00	— —
Broad Top	" " — —		5 50	— —
Hill & Harris	" " — —		7 00	— —
Henry Clay	" " — —		7 00	— —
Powelton	" " — —		6 50	— —
Burnside	" " — —		— —	7 00
BITUMINOUS COALS.				
Kittaning Coal Co.'s Phœnix Vein..f.o.b. at Phila.				$5 25
" " Lemon "				5 00
Cumberland C. & I. Co.'s on board			N. Y.	7 50
Central C. & M. Co.'s	"		"	7 50
Consolidated Coal Co.'s	"		"	7 50

[*Dealers in these coals may be found in our advertising columns.]

Company Coals.

	L.	Str.	Gra.	Eg.	Sto.	Ches.
Scranton at E. Port	— —	— —	— —	— —	— —	— —
Pittston at N. Y	6 30	6 30	6 40	6 40	7 25	6 10
Lackawana at Weh'kn.	5 50	5 75	6 00	6 00	6 75	5 50
Wilk'b're at Hoboken.	5 50	5 75	6 00	6 00	6 75	5 75
Old Co. Lehigh at Pt. Johnston	7 00	6 25	7 00	7 00	7 50	6 25
Lehigh at E. Port	6 50	6 00	6 00	7 00	7 50	5 50

For freights to different points, see "Freights."

Prices for Coal at Mauch Chunk.

	F.L.	Bro.	Gra.	Eg.	Sto.	Cst.
Lehigh	$4 00	$4 25	$4 50	$4 50	$4 75	$4 00
Wilkesbarre	4 00	4 25	4 50	4 50	4 75	4 00

For freight to Elizabethport and to New York see "Freights."

Prices of Foreign Coals.

January, 1870.

Duty $1 25 per ton.

Corrected weekly by PARMELE BROS., No 32 Pine street, New York.

Liverpool Gas Caking	$ 9 50@— —
" " Cannel	14 00@— —
" House "	17 50@18 00
" Orrel	16 00@18 00
Per ton 2,240 lbs., ex-ship.	
PRICES FROM YARD.	
Liverpool House Orrel, screened	$16 00@18 00
" " Cannel, "	18 00@19 00
Per ton 2,000 lbs., delivered	

Prices of Gas Coals.

January, 1870.

PROVINCIAL.

Duty, $1 25.	Coarse. Gold.	Slack. Gold.
Block House	$1 75 @— 75	
Gowrie	1 75 @— 75	
Lingan	1 75 @— 75	
Sydney	2 13½ @— 71½	
Pictou	2 13½ @1 1?¾	
Little Glace Bay	1 50 @1 00	
Caledonia	1 50 @— 75	

AMERICAN.

	Coarse. Currency.	Slack. Currency.
Westmoreland Co.	— — @— —	
Despard Coal Co.	$8 50 @8 00	
Penn.	— — @— —	
Newburg Orrel Gas	— — @— —	
West Fairmount Gas Coal	— — @8 00	

AT PHILADELPHIA.

Powelton	$7 50

Prices at Baltimore—Jan. 1870.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load	$7 75@7 90
Pittston and Plymouth	7 50@7 75
Shamokin Red or White Ash	6 75@7 00
Lykens Valley Red Ash	7 30@7 55
Trevorton, Red Ash	6 75@7 25
By retail, per ton of 2240 lbs. delivered	8 25@8 50
Georges Creek & Cumberland f. o. b. at Locust Point for shipping	— —@5 00
West Fairmount Gas f. o. b.	— —@6 50

Prices at Georget'n, D.C., & Alexandria, Va.

December, 1869.

George's Creek and Cumberland f. o. b. for shipping..$4 75

Prices at Havre de Grace, Md.

Wilkesbarre and other White Ash for cargoes	$— —@— —
Lykens Valley	— —@— —
Shamokin Red or White Ash	— —@— —
Trevorton and Zebra Valley	— —@— —

Foreign and Provincial Freights.

January, 1870.

Foreign.	
Newcastle and Ports on Tyne	£15@£17 keel
Liverpool	18s. —. do
TO NEW YORK.	
Provincial	
Sidney	$3 25
Lingan	3 25
Cow Bay	3 75
Port Caledonia	3 25
Little Glace Bay	3 25
TO BOSTON.	
Sydney	$2 75
Lingan	3 75
Cow Bay	3 25
Port Caledonia	3 00
Little Glace Bay	2 25

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven	$2 50
From Port Carbon, 8 cents per ton more.	
TO ELIZABETHPORT.	
L. V. Railroad from Mauch Chunk to Easton	$1 15
C. R. R., N. J., Easton to Elizabethport	1 75
Shipping expenses at Elizabethport	25
Total	$3 10
TO PORT JOHNSON.	
L. V. R. R.	$1 15
C. R. R., of N. J.	1 80
Shipping expenses	25
Total	$3 20
TO HOBOKEN.	
L. V. R. R.	$1 15
Morris & Essex R. R.	1 80
Shipping expenses	25
Total	$3 20
TO SOUTH AMBOY.	
L. V. R. R.	$1 15
B. & D. R. R.	1 10
Cam. & Am. R. R.	50
Shipping Expenses,	25
Total	$3 00

Freights.—JANUARY, 1870.

TO EASTERN PORTS.	From Philadelphia.	From E. Port and Port Johnston.	From Newburg	From Rondout
Stamford	$2 00	$1 10	$	$
Norwalk	2 25	1 15		
Bridgeport	2 00	1 10		
New Haven	2 25	— —		
Hartford	2 75			
New London	2 00	1 35		
Norwich	2 00	1 35		
Mystic	2 00	— —		
Stonington	2 00	1 40		
Sag Harbor	2 00	1 10		
Bristol	2 25	1 40		
Newport	2 25	1 45		
Fall River	2 25	1 40		
Providence	2 25	1 40		
Dighton	— —	— —		
Warren	— —	— —		
Pawtucket	2 25	— —		
New Bedford	2 25	1 40		
East Cambridge	3 00	— —		
Salem	3 00	2 00		
Newburyport	3 10	2 00		
Portsmouth, N. H.	3 35	2 00		
Rockport	— —	— —		
Saco	3 00	2 00		
Portland	3 00	2 00		
Bangor	3 00	— —		
Bath	3 00	2 00		
Middletown	— —	— —		
Amesbury	3 25	— —		
Boston	3 15	2 00		
Cambridgeport	3 00	— —		
Taunton	3 10	2 00		
Derby	2 00			
New York	1 75	50		
Hackensack	1 95	— —		
Jersey City	1 75	50		
TO RIVER PORTS.				
Troy	— —	— —		
Albany	— —	— —		
Coeyman's	— —	— —		
Stuyvesant	— —	— —		
Cocksackie	— —	— —		
Hudson	— —	— —		
Catskill	— —	— —		
Poughkeepsie	— —	— —		
Fishkill	— —	— —		
Cold Spring	— —	— —		
Haverstraw	— —	50		
Nyack	1 60	50		
Sing Sing	1 60	— —		
Yonkers	— —	40		
New York	— —	— —		
Saugerties	— —	— —		
Rhinebeck	— —	— —		
Rondout	— —	— —		
Tarrytown	1 60	80		
West Point	— —	— —		

METALS.

IRON.—Duty: Bars, 1 to 1½ cents ₱ lb; Railroad, 70 cents ₱ 100 lbs.; Boiler and Plate, 1½ cents ₱ lb; Sheet, Band, Hoop, and Scroll, 1¼ to 1¾ cents ₱ lb; Pig, 9 ₱ ton; Polished Sheet, 2 cents ₱ lb.

	Store Prices.
Pig, Scotch No. 1, ₱ ton	32 00@34 00
Pig, American, No. 1	30 00@— —
Pig, American, No. 2	30 —@27 —
Pig, American, Forge	33 —@35 —
Bar, Refined, English and American	85 —@87 50
Bar, Swedes, assorted sizes (gold)	82 50@85 00
Bar, Swedes, ord'y sizes, less 5 ₱ ct.	120 —@130 —
Bar, Refined	85 —@— —
Bar, Common	110 —@145 —
Scroll	110 —@135 —
Ovals and half-round	110 —@— —
Band	110 —@— —
Horse Shoe	— —@ 60 —
Rods, ⅜ to 3-16 inch	90 —@140 —
Hoop	115 —@100 —
Nail rod, less 5 ₱ ct.	8 —@8½ —
Sheet, Russia, as to Nos. (gold)	— 11—@—12—
Sheet, Single, D. and T. Common	— 5¼@— 7
Sheet, Galvanized	List 15@25 ₱ cent, discount.
Rails, English (gold), ₱ ton	56 50 @57 00
Rails, American, at Works in Pa.	76 00 @77 00

STEEL.—Duty: Bars and ingots, valued at 7 cents ₱ lb or under, 2½ cents; over 7 cents and not above 11, 3 cents ₱ lb; over 11 cents, 2½ cents ₱ lb, and 10 ₱ cent ad val. (Store prices.)

English Cast (2d and 1st quality) ₱ lb	— 16 @— 20
English Spring (2d and 1st quality)	— 7 @— 19
English Blister (2d and 1st quality)	— 11 @— 18
English Machinery	— 11½@— 14
English German (2d and 1st quality)	— 13 @— 15
American Blister "Black Diamond"	— 10½@— 16
American, Cast, Tool do.	— 19 @— —
American, Spring, do.	— 10 @— 13
American Machinery, do.	— — @— 13
American German, do.	— 10 @— 13

COPPER.—Duty: Pig, Bar, and Ingot, 5; old Copper cents ₱ lb; Manufactured, 45 per cent. ad val.

	All Cash.
Copper, New Sheathing, ₱ lb	— @— 32
Copper Bolts	— @— 33
Copper Braziers, 16oz. and over	33 @— 35
Copper Nails	38 @— 40
Copper, Old Sheathing, &c., clean	18 @— 19
Copper, Chili Pig	— @— —
Copper, American Ingot	— @— 22
Yellow Metal, New Sheating	— @— 27
Yellow Metal Bolts	— @— 27
Yellow Metal Nails	— @— 27

LEAD.—Duty: Pig, $2 ₱ 100 lbs.; old Lead, 1½ cents ₱ lb; Pipe and Sheet, 2¼ cents ₱ lb.

Galena, ₱ 100 lbs.	$— — @— —
Spanish (gold)	8 20 @6 30
German, do.	6 20 @6 37½
English, do.	6 25 @6 75
Bar (net)	8 37½@— —
Pipe and Sheet (net)	8 37½@— —

TIN.—Duty: Pig, Bars, and Blocks, 15 ₱ cent. ad val.; Plate and Sheets and Terne Plates, 25 ₱ cent. ad val.

	Gold ₱ lb.
Banca	35 @—
Straits	31½@—
English	— @—

PLATES.

	Fair to Good Brands. Gold.	Currency.
I. C. Charcoal, ₱ box	$8 00 @8 25	$10 25 @10 75
I. C. Coke	6 75 @7 37½	8 50 @ 9 50
Coke Terne	— — @6 00	— — @ 8 00
Charcoal Terne	7 25 @8 00	9 50 @10 25

SPELTER.—Duty: In Pigs, Bars, and Plates, $1 50 ₱ 100 lb.

	Gold.
Plates, Foreign	₱ 100 lbs. $6 12½@6 25
Plates, Domestic	₱ lb. 10 @— 12

REMARKS.

IRON.—There has been a little more inquiry for Scotch Pig, induced by the lower prices accepted. Dealers, however, only purchase as their wants compel, and prices still have a downward tendency; 460 tons Glengarnock, part to arrive, sold at $33 @ $33 50, and 400 do. Eglinton, $32 @ $33. There is very little inquiry for American, and prices, though unchanged, are inclined to soften. Wrought Scrap is in good supply, but as the demand has almost entirely subsided, a further concession has been made in prices—$35 @ $36 being the nominal quotation. There is little movement in Bar, and prices are materially lower, neither manufacturers or jobbers doing anything of moment. It will be seen by the following figures that the price for jobbing lots from store has declined from the previous nominal quotations $10 ₱ ton, though we had anticipated this in part in our quotation of Refined Bar. The jobbing price of Swedes Bar from store is now $120 @ $130; Refined Bar (English and American) $85; Common do. about $80; Scroll $110 @ $145; Ovals and Half-round $110 @ $135; Band and Horse Shoe $110; Rods (¼ to 3-16) $90 @ $140; Hoop $115 @ $160; and Nail Rods 8 @ 8½ cents, all net cash, not less five per cent. as before quoted.

LEAD.—Pig is without demand and prices are

nominally as before, say $6 25, gold, for ordinary. Foreign Bar, Sheet and Pipe are steady at 8¾ cents, net cash.

COPPER.—The manufactures of Copper and Yellow Metal are steady at our quoted rates. For Ingot there is an improved demand from dealers and manufacturers, and, with the continuance of the speculative feeling, the market is very strong and a little higher; sales have been made of 450,000 lbs. Detroit and Lake Superior at 21¾ @ 21¾ cents; 175,000 lbs., 22c.; 300,000 lbs. for delivery first week in January, 22c.; 25,000 lbs. for end of January, 22½c; 50,000 lbs. for March, 22½c.; and 20,000 lbs. Quincy, 22¾c.

TIN.—The foreign accounts for Pig are not favorable to holders, and, with the continuance of a very limited demand, the market is weak and unsettled, stocks being offered at prices below those nominally current for some time past, without leading to much business; 250 slabs Straits sold on private terms, but at something under 32 cents, gold; English can be bought at 30. Plates, too, are dull and unsettled, and though we retain previous quotations, they are, in the absence of business, entirely nominal.

STEEL—Continues dull and nominal at our quotations.

SPELTER—Remains in the same dormant position, and, though holders generally demand 6¼ cents, gold, for Silesian, the quotation is entirely nominal.

ZINC.—French, dry, 11c.; American, dry, 8½c; Metallic, 11c.

MANGANESE—5c. per lb.

Mining Stocks.

NEW YORK, Dec. 30, 1869.

There is less firmness in the market, with but little business doing. Quartz Hill is quoted down to 70@ 77c., and Smith & Parmelee at $1 65@1 70, with sales to-day s3, at the latter figure. Consolidated Gregory is now offered at $1 60—in fact every stock on the list has declined to some extent.

Coppers are somewhat more in the market, with Caledonia quoted at $1 15 and Flint Steel River at $3 50.

Petroleums hold their own against the depressing influence of holiday week, and the decline noticeable in some stocks is made up by the advance evident in others. The following is the latest report from the stock board:

	Bid.	Asked.
Bennehoff		
Brevoort	1 00	1 73
Buchanan Farm	25	43
Central	72	75
Home Petroleum	5 50	7 00
National	—	—
New York and Alleghany	1 25	—
Northern Light	50	75
Rathbone Oil	20	—
Rynd Farm	42	45
Sherman & Barnsdale	—	—
United Petroleum Farms	19	21
United States	75	90
Bergen Coal and Oil	—	—
Second National	55	—

San Francisco Stock Market.

SAN FRANCISCO, December 27, 1869.
(By Telegraph.)

	1st Board.	2d Board.
Savage	46⅞	—
Crown Point	18¾	—
Yellow Jacket	49	—
Kentucky	1 48½	—
Chollar Potosi	18⅝	—
Gould & Curry	71	—
Ophir	—	—
Alpha	—	—
Belcher	15⅝	—
Imperial	52	—
Hale & Norcross	1 53	—
Amador	—	—

London Metal Circular.

LONDON, December 10, 1869.

Business has been almost at a standstill, and there does not appear to be much chance of a revival this year.

COPPER.—The market has been held in check all the week, owing to the non-arrival of the Chili news up to the 2d of November, which were due by cablegram on Monday last, but are not yet to hand. Meanwhile the anticipation that these advices will show large shipments and charters, has unfavorably influenced the market for Chili Bars, and after some business early in the week at £66 15s. cash, and and £67 10s. three months, sales have been effected at £66 10s. cash, and at the close the price is not very strong at this figure. Wallaroo has changed hands at £73, and Burra Burra at £73 10s., some few lots of second-hand English Tough at from £70 to £71, and Best £71 10s.@£72 in warehouse. The general trade demand has not been good.

TIN.—Foreign sorts have been especially weak since our last report. Banca and Straits have given way to 113@114s., and one forced sale of the latter s reported at 112s. English Common is still in good demand at about £2 under the smelters rates, but Refined is in very small request.

TIN PLATES.—Orders come in very slowly, and prices continue exceedingly low, but many of the competent judges look confidently to a considerable demand early next year, and consequently for better prices.

IRON.—A few of the makers are more disposed to book orders, and prices at the moment appear to be going rather in favor of the buyers, excepting in Pig Iron, which still looks like going higher.

SPELTER.—A very dull market, and prices easy.

LEAD.—Very little doing.

VIVIAN, YOUNGER & BOND.

Naphtha as Fuel.

THE attempts to employ naphtha as fuel have at length proved successful. On July 31, a train arrived safely in Kutschujan, 81 versts from Charkoff, whose engine was heated with raw naphtha instead of coals. The honor of the invention is ascribed to the mining engineer Portski.—*Mechanics' Magazine.*

The Louisville Bridge.

WORK on the great railroad bridge over the Ohio, at Louisville, is so far advanced that the engineers are confident of being able to open it for the passage of regular trains by the 15th inst. Construction trains, however, will be able to pass several days sooner.

The total length of the iron superstructure is 5,280 feet, of which two spans are respectively 370 and 400 feet long. The middle and Indiana channels are "over grade" or "through," the others, varying in length from 50 to 350 feet, are "under grade" or deck. The under grade portion is of the same plan known as Fink's Patent Suspension Truss—a plan that has been well and favorably known for over twenty years.

The 400 feet span now rests on its permanent bearings, and is in every respect satisfactory to its engineers. This, by the way, is the longest span ever erected in America, the next less being the main span of the Victoria Bridge, at Montreal, Canada, which is 330 feet long, and he channel span of the Steubenville Bridge, which is 320 feet long. The plan of truss is that known as the "triangular," one which has been extensively and successfully used by Mr. FINK, and has been in the present case especially arranged for this long span. The clear space above low water line under this span is 96½ feet, and above high water line 45½ feet; the total height from the rock bed of the river to the top of the upper chord of this span is 160 feet.

The total quantity of iron, wrought and cast, used in the construction of this great bridge, is 8,700,000 pounds, and the amount of timber, including rails, joists, cross-ties, and railway, will be 640,000 feet, board measure.

Considering the large number of men employed on the structure, and the character of the work, few accidents have occurred. In almost every case in which men have been killed or injured, it has resulted from their own carelessness. The company have taken particular pains to provide means of rescue for those who may fall into the river, and several skiffs, with two men in each, are always moored below, ready to give aid in case of emergency. Very few visitors are allowed on the bridge, for fear of accidents to them, where so many men are at work. One can get a pretty good idea of its immensity, however, from the city wharf, where numbers go every day to see it.

The Engineering and Mining Journal in Monthly Parts.

A WORD TO OUR EXCHANGES AND SUBSCRIBERS.

MANY of our exchanges hereafter will receive THE ENGINEERING AND MINING JOURNAL in monthly parts, neatly put up in covers, cut and stitched. This, we feel assured, will be a welcome change to all those who desire to preserve the JOURNAL for reference. Should any of our Editorial friends, however, prefer to receive the weekly numbers as they are issued, we will so send them upon notification to that effect.

The following complimentary notice is from the Detroit (Michigan) *Commercial Advertiser*, of December 18—the foremost paper in its speciality in Michigan. It not only endorses our new plan, but our paper generally, in flattering terms:

"ENGINEERING AND MINING JOURNAL.—We have received the monthly part for November of THE ENGINEERING AND MINING JOURNAL. This journal we have taken a previous occasion to express our good opinion of, and can only add that the binding of the numbers in monthly parts will prove of great convenience. Each part contains articles covering a wide range of subjects, and a mechanical man will turn over the pages with delight. Published by WESTERN & CO., New York; terms, $4 per year."

Subscribers who prefer it can, if they desire, receive their paper in monthly form without extra cost.

Plumbago.

A Ceylon paper says that if the world wants plumbago, and is willing to give a good price for it, Ceylon can supply the want. Fresh discoveries of the mineral are constantly made. Should mining continue at the rate of the past few years, Government will have to regulate the pursuit with reference to the safety of the people. Otherwise lives will be lost from foul air and the collapse of badly-formed pits. We observe that the Chamber of Commerce found the specimens of this mineral sent some time ago from Hambantotte, to be defective from the presence of "rust," or, as the natives call it, "water mark." It will be observed that the progress of this staple export has been from 46,000 cwts. to, in round numbers, 200,000. The quantity therefore has considerably more than quadrupled in five years, and more than doubled in the past as compared with the previous season. The average is not far from double the quantity with which the period under review began.

MINING COMPANIES AND STOCK QUOTATIONS.

GOLD AND SILVER COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
Alameda Silver		Queran, 108 Wall st	$2,000,000	$10 00		
Ada Elmore	South Boise, Idaho					
American Flag	Nevada District, Col	P. P. Fullerton, 71 B'way	600,000	10 00		
Atlantic and Pacific	Humboldt Co., Nevada					
Bates and Baxter	Colorado			50 00		
Benton	Colorado	W. F. Drake, 15 Broad	500,000	5 00		15
Briggs	Colorado	J. P. Davies, 19 Cliff	1,000,000	100 00		
Black Hawk	Colorado	C.T.Whittington, 48 Broad	2,500,000	100 00	10	
Bobtail	Colorado	J. Stanton, Jr., 25 Nassau	1,000,000			
Bullion Consolid'ed Gold	Colorado					
Burroughs Gold	Colorado					
Church Union Gold	California					
Consolidated Gregory	Colorado				1 55	1 60
Combination Silver	Nevada			100 00	1 50	
Columbia Silver	Austin, Nevada	J. M. Brown, 155 B'way	5,000,000			
Commercial Silver		J. E. Smith, 26 Pine	3,000,000			
Corydon	Gilpin Co., Colorado	J. Samuels, 40 B'way	500,000			
Downieville	Colorado		2,500,000	25 00		
Eagle Gold	Gold Dirt Dist., Col	J. P. Davies, 19 Cliff	500,000	1 00		
Empire Gold and Silver	BodieBluff,MonoCo.Cal	H. K. Gates, 70 B'way	1,000,000			
Edgehill		A. Fullerton, 71 B'way	10,000,000			
Esperanza Silver		Ezra Clark, Jr., 13 William	400,000			
Fisk Gold		H. Johnson, 195 Fulton	500,000			
Forest Queen		E. B. Feet, 62 B'way	1,000,000			
Golconda Gold	Sherbrooke, C. E	H. Adams, 71 Broadway	2,000,000			
Gregory	Colorado		1,250,000			
Gunnell Gold	Colorado	J. H. Rolston, 80 B'way	1,000,000	50 00		
Gunnell Central	Colorado	C. B. Bostwick, 16 B'way	3,000,000	10 00		
Gold Rock		R. M. Lockwood, 93 Wall	400,000			
Grass Valley					25	28
International Silver		J. W. Brazier, 26 Pine	600,000			
Hope Gold	Colorado		5,000,000			10
Holman			2,000,000	25 00		10
Kipp & Buell	Colorado		300,000			
Knickerbocker Gold		J. H. Rolston, 80 B'way	200,000	100 00		
La Crosse Gold	Nevada Dist., Col	P. P. Fullerton, 71 B'way	1,000,000		15	17
Lander Hill T. & S	Nevada	M.L.Catherwood,74 B'way	1,000,000			
Lewis Gold	Georgia		1,000,000			
Liberty Gold					2	3
Manhattan Silver	Nevada	M. L. Ogden	400,000			
Maraposa common	California	Jas. H. Ferdon, 34 Wall	12,000,000		7⅞	
Mariposa preferred	California	do. do.			14⅞	16
Montana Gold		G. De Cordova	400,000			
Montana M. L. & M. Co.	Montana	A. M. Hoyt, 22 William	250,000			
Montrose	Clear Creek Co., Cal	W. W. Perkins, 71 B'way	1,000,000			
New York Silver	Nevada	Thos. Sproull, 78 B'way	1,500,000			
New York and Austin	Nevada	E. R. Siccomb, 70 Wall	500,000			
New York and Owyhee	Owyhee Co., Idaho		1,000,000			
New York and Eldorado		G. H. Munroe, 10 Wall	2,000,000			
N. Y. & Montana M. & D.	Montana	F. A. Chapman, 20 Nassau	1,250,000			
N. Y. & Silver Peach	Nevada	R. C. Root, 74 B'way	2,000,000			
N. Y. & Utah P. & M		W. H. Mailler, 108 Wall				
Ophir Gold	Comstock Lode, Nev	L. C. Warner, 70 B'way	625,000			
Owyhee Gold		W. H. Smith, 43 Ex. Place	1,700,000			
Pahranagat Central	Nevada	J. E. Smith, 25 Pine	6,000,000			
Quartz Hill Gold		F. Bernard	2,500,000		70	77
Reese River Consol'd	Nevada	W. B. Ogden	6,000,000		67	69
Rocky Mountain	Colorado	S. M. Pond, 70 B'way	500,000	10 00	5	12
Rollins Gold		Thos. Bond, 132 B'way	600,000			
Sensenderfer	Colorado	H. A. Shewitt, 19 Broad	1,000,000			
Silver Bend		F. W. Macy, 20 Nassau	1,500,000			
Silver Mt. Silver		H. A. Moen, 71 B'way	1,000,000			
Silver Peak & R. M	Nevada	W. B. Ogden, 52 Wall	5,000,000			
Smith & Parmelee	Colorado	W. H. Hollister, 6 Broad	2,500,000	20 00	1 65	1 70
Social & Steptoe Con		T. H. O'Connor, 24 Nassau	450,000			
Standard Gold		C. B. Bostwick, 169 B'way	500,000			
Symonds Forks						
Twin River Silver	Nevada	J. F. R. Hadden, 20 Nassau	800,000	100 00		
Texas Gold	Colorado		500,000	10 00		
Union Gold	Colorado	F. A. Potts, 110 B'way	1,200,000			
Wash. Mill & Silver	Nevada	W. W. Perkins, 71 B'way	300,000			
Wauba Yuma	Arizona	J. W. Sisby, 36 Pine	6,000,000			

COAL AND IRON COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
American Coal Co		M. A. Myers, 119 B'way	$1,500,000	$25 00		
Ashburton Coal Co		J. T. Rollins, 41 Pine	2,500,000			
Block House Coal		D. B. Keeler, Jr., 43 Pine	1,000,000			
Brewster Iron		H. Robison, 165 B'way	150,000			
Broad Top Coal & Iron Co	Pennsylvania	B. Love	2,000,000			
Cameron Coal Co		J. A. Simpson, 40 B'way	2,500,000			
Carbon Hill Coal Co		J. Silsby, 36 Pine	1,000,000			
Central Coal		F. P. White, 111 B'way	2,000,000	100 00		
Clifton Iron Co		P. H. Riordan, 34 Pine	1,250,000			
Columbia Iron		E. D. Webb, 77 Cedar	1,000,000			
Consolidation Coal	Maryland	J. S. Mackie, 71 B'way	5,000,000			
Crawford Coal		E. Clapp, Prest, 137 B'way	1,000,000			
Cumberland C. & I. Co		E. Kiscan, 90 B'way	5,000,000		24½	26½
Derby Coal Co		W. S. Davison, 11 Broad				
Dover Coal and Iron Co		L. Chase, 88 Wall				
Del. & Hudson Canal Co			10,000,000	100 00		
Ebervale Coal		G.I. Stout, Treas., 111 B'y	500,000			
Fall River Bituminous		D. T. Blauvelt, 43 Pine	1,000,000			
Farrar Coal		C. H. Jones, 43 Pine	250,000			
Fisher Iron Co		M. Ellis, 19 William	100,000			
Hamp're & Balt. Coal		S. M. Pond, 70 B'way	500,000			
Iron Cliffs Co		C. J. Canda, 52 Wall	1,000,000			
Jackson Iron		G. P. Loyd, 119 B'way	300,000			
Kemble Coal & I. Co		R. A. Wight, 26 Ex. Place	300,000			
Keokuk Coal		J. F. Franklin, 112 B'way	100,000			
Lackawanna I. & C	Pennsylvania	E. C. Lynde, 52 Wall	1,200,000			
Lewis Run C. & I. Co		C. A. Sanborn, 80 B'way	750,000			
Lyzens Val. Coal Co		F. A. Platt, 13 William	800,000			
McKean Co. Bit. Coal Co		J. H. Rolston, 80 B'way	1,500,000			
Lehigh & Susquehanna						
Mahanoy			400,000	100 00		
McNeal C. & I. Co		C. C. Godwin, 71 B'way	500,000			
Mount Riga Iron		G. M. Newton, 42 Cedar	300,000			
New Boston Coal		C. H. Ogden, 55 B'way	2,000,000			
N. Y. Con. C. & I. Co		A. T. Levine, 16 Wall				
N. Y. & Lehigh Coal		T. Simpson, 111 B'way	150,000			
Pacific Coal Co		G. Wrighton, 31 Wall				
Peekskill Iron Co		W. Murdock, 7 Nassau				
Pennsylvania Coal Co		C. H. Mead, 111 B'way	3,200,000	50 00		
Richmond Iron Co		C. H. Smith, 165 B'way	1,000,000			
Scotia Coal Co		I. N. Soper, 42 B'way	2,500,000			
Spring Mt. Coal		C. Runyon, 111 B'way	1,250,000			
Springfield & D'p Run C.		E. D. Webb, 77 Cedar	600,000			
Stout Coal Co		G. S. Comstock, 111 B'way	500,000			
Susquehanna & Wyoming		E. Potter, 40 B'way	1,000,000			
Tannerdale Coal		I. T. Ludlow, 71 B'way	250,000			
Wash. Mutual Coal		M. C. Baker, 117 B'way	420,000			
West Point Iron Co		R. C. Brock, 110 B'way	500,000			
Wilkesbarre C. & I. Co		W. H. Tillinghast, 80 B'y	3,400,000			
Wyoming Val. Coal Co		E. Potter, 40 B'way	1,000,000			

COPPER AND LEAD COMPANIES.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED
Anita Copper	California	J. A. Ferguson, 8 Wall				
Corinth Copper	Corinth, Vermont	S. H. Howard, 191 B'way	$500,000	25 00		
Davidson Copper					3	25
Eagle Harbor Copper	Michigan	W. H. Smith, 43 Ex. Place	500,000	25 00		
Evergreen Bluff Copper	Michigan	F. W. Caper, 44 Ex. Place	500,000	25 00		
Globe Copper		R. K. Rickard, 19 Nassau	200,000			
Grand Portage Copper Co		A. S. Kellogg, 22 Pine	500,000			
Guymard Lead		Samuel Vernor, 38 Pine				
Hilton Copper		W. H. Smith, 43 Ex. Place	500,000			75
Hope Copper		J. W. Davis, 19 Nassau	500,000			
Hudson River Copper	New York	T. Clarkson, 22 William	1,500,000			
Indiana Copper Co		J. M. Mills, 25 Nassau	500,000			
Isle Royale Copper	Michigan	F. W. Caper, 44 Ex. Place	1,000,000			
Keweenaw Copper	Michigan	F. W. Caper, 44 Ex. Place	500,000			
Lake Superi'r Silver Lead	Michigan	A. S. Kellogg, 22 Pine	1,000,000			
Omiga Copper	Michigan	S. Cooper, 7 Pine	500,000			
Ridge Copper	Michigan	J. L. Gardiner, Jr., 43 Ex. P.	500,000			
Rockland Copper	Michigan	A. Fullerton, 71 B'way	500,000			
St. Joseph Lead	Michigan	J. W. Jones, 6 Broad st,	1,000,000			
St. Marguret Copper		E. P. Sutton, 43 Pine	250,000			
Schoolcraft Copper		R. Walsh, 22 William	500,000			
Superior Copper	Michigan	A. Fullerton, 71 B'way	500,000			
Union Copper		A. S. Kellogg, 22 Pine	500,000			
Vermont Copper	Vermont	J. C. Fly, 191 B'way	500,000			
Wallkill Lead, asst		S. M. Pond, 70 B'way			4	6

MISCELLANEOUS.	SITUATION OF MINE.	SECRETARY AND PLACE OF BUSINESS.	CAPITAL.	PAR VALUE.	OFF'R'D.	ASKED.
American Zinc Co		W. E. Lawton, 19 Cliff	$1,000,000			
Bigelow Blue Stone Co		H. Bogardus, 14 Pine				
Quicksilver					15⅛	15⅝
Covill B. L. M. & M'f. Co		C. R. Bostwick, 302 Pearl	250,000			
Manhattan Marble		H. K. Gates, 70 B'way	300,000			
N. Jersey Zinc Co	New Jersey	A. H. Farlin, 61 Maiden L'e	1,500,000			

The African Gold Fields.

MR. R. A. PARRISH, JR., of Philadelphia, has published a volume containing the details of an unpaid claim in France, for twenty-four million francs, "guaranteed by the parole of Napoleon III." This large amount is made up of fifteen millions, due August, 1854, and nine millions, interest at four per cent. for fifteen years. The history of the claim is briefly as follows :

Mr. PARRISH, having satisfied himself, by study of the works of geographers and travellers, of the extraordinary value of the auriferous region traversed by the Kong mountains in Northern Africa, addressed a memorial to the United States government, in the year 1853, proposing a conquest of that region. Mr. CUSHING, then Attorney General, "conceived that the government could not participate in the proposed expedition," and the memorial was returned to the author, who, soon after, laid it before M. FOULD, the French Minister of State, and, subsequently, before the Emperor himself. Mr. PARRISH declares, that at this, his first and only private audience of the Emperor, that august personage pledged his parole for the payment to him of fifteen million francs, so soon as the authority of France should be established in any portion of the indicated territory ; and he claims that the French have since overrun the whole of that region, and that the imperial government has for many years been receiving immense quantities of gold secretly from its mines in Senegal, while the promised payment has never been made, and the claimant has been subjected to a series of vexatious delays and persecutions, intended to exhaust his patience or daunt his courage, and amounting in some instances, as he believes, to attempted assassination.

Upon the personal grievance of Mr. PARRISH, we have nothing to say. The feverish style in which he recounts it, and the over-strained significance which he attaches to small circumstances attending it, are not calculated to impress the general public with the perfect impartiality of his statement ; and, unfortunately for him, he has no direct evidence to confirm his understanding of the central fact, upon which the whole matter turns. If the Emperor really promised to pay him this large sum of money, as soon as the French flag was raised in the territory he pointed out, and before any proof had been obtained of the value of his suggestions, then the Emperor made a rash promise, which he ought to keep. But his not keeping it does not necessarily prove the "thrice-hellish wickedness of the French government." The wronged claimant does not, in fact, appear to understand clearly who is to blame in the matter. In one place, he intimates that the money to pay him has been appropriated, but stolen by some subordinate officials ; and in many places he expresses his conviction that a personal audience with the Emperor would make all right ; and that he is hindered from this audience by interested parties. We repeat, that it is impossible for disinterested outsiders to get at the merits of the case, so far as it rests on a personal understanding or misunderstanding between two men.

A point of much greater interest to us, and to the public, is the question of the actual value of the suggestion of Mr. PARRISH, and of the results which have flowed from it. It is certain that the activity of the French government in Africa has been, since 1854, very great. A large extent of territory is now nominally under French authority or French "protection"; and the colony of Senegal has assumed considerable importance. Mr. PARRISH undertakes to show that this activity is the direct result of the information imparted by him ; and the dates are in his favor.

With regard to the product of the gold mines, however, his assertion that France has been receiving gold from them at the rate of a hundred million dollars a year ; and that this amount has been coined, and sent into circulation, without betraying its origin, is beyond the possibility of belief. It is supported in Mr. PARRISH'S book only by the figures of coinage, which show a very large increase in the coinage of the French mint, after 1853. This evidence is not by any means satisfactory. The causes of the heavy coinage of France are known ; and, in any event, the gross amounts give no criterion for the annual production of precious metals. Even if the argument is admissible with anything more than a dubious collateral force, the details of its construction are faulty. Thus, it is said (pages 90 and 91) that the average annual product of gold in the world from 1854 to 1857, was as follows :

From Australia	$46,108,273
" California	47,249,442
All other sources, except Russia	1,380,000
Total	$94,737,715

while the average gold coinage of France for the same period was $102,789,962. In this statement the annual product of Russia is omitted, "since that country retains its own gold ;" but it it is not fair to suppress the whole item of $15,500,000 on that ground. Russia cannot retain her own gold, and at the same time fill the palaces of her nobility with the products of French skill and taste. But several important sources of supply are entirely ignored. A much nearer estimate of annual production for the period referred to, would be the following :

Australia	$46,200,000
United States	47,300,000
Austria	1,250,000
South America	1,500,000
Africa	1,000,000
Borneo and East India	5,000,000
China, Japan, etc.	5,000,000
Russia	15,500,000
	$123,250,000

Subtracting now, if we choose, the last two items, we have an aggregate of $102,750,000.

But we have said that the causes of the great coinage of France are well known, and render all comparisons of this kind entirely worthless. The principal business of the French mint is the coinage of bars and coin sent there from abroad, *because the mint charges are so low.* This fact appears from the following table :

Place.	Charge per ounce	Percentage of charge on value of gold.	Total charge on 100 oz. of average gold.	Net value of 100 oz. of such gold
S. F. Branch Mint	19.88	$1.13	$20.29	$1,755 57
S. F. Assaying and Refining Works	16.88	0.96	17.29	1,758 57
Phil. Mint and N. Y. Assay Office	13.88	0.79	14.29	1,761 57
London	9.25	0.53	9.25	1,766 61
Paris	7.15	0.40	7.15	1,768 15
Value at S. F. *as a bar* (average 890 par)				$1,764 13
" N. Y. " " (average ½ on 900)				1,766 33
The bar, if sent to London *as coin*, would yield				1,761 15

This table is taken from the recent able report of Mr. LOUIS A. GARNETT to the Committee of Ways and Means of the House of Representatives. It proves that 100 ounces of gold is worth in our market $8 60 more for export than at our mint for coinage. In England there is no charge for coinage, and the deductions in the table are made for the melting, assaying, and refining, which are done by private parties. In Paris, the coinage is done by contract, and the refining by private establishments. It will be seen that the aggregate deductions in Paris are much less than anywhere else. The result is that the gold of other nations goes to France to be coined ; and this is also the case with their coins. These simple facts overthrow the statistical argument of Mr. PARRISH, and, supported as they are by the immense improbability of an annual production from Africa, for many years, exceeding that of any other continent, and yet remaining unnoticed by political economists, or (what is still more unlikely) by private adventurers, they justify us in the conclusion that he has over-estimated the present productiveness of this auriferous region.

At the same time, we do not doubt that an important industry will be developed in the gold fields of Africa ; and Mr. PARRISH is entitled to credit for the intelligence and perseverance with which he has called attention to their value. With his schemes of conquest, or his private bargains, we have nothing to do ; and the perusal of his book has impressed us mainly with regret that a writer of so much force does not enter upon literary labors, which will be more fruitful of remuneration.

Wooden Railways.

A Canadian exchange quotes from the report of the select committee on wooden railways, the following extracts from a pamphlet published in 1845, on "PROSSER'S Patent Railway Guide Wheels, on either Iron or Wooden Rails" :

"The length of the experimental line laid down near Vauxhall bridge was 174 yards, with gradients of 1 in 95, 1 in 22, and 1 in 9, and a curve of 720 feet radius. The speed attainable on so short a line was of course limited ; but the power given to the engineer by the bite of the wheel on the wood (for this line was laid with wooden rails) enabled him to drive it at the rate of twenty-four miles an hour, and to stop the carriage in a distance of twenty-four yards. In the presence of several engineers the carriage, laden with passengers, ascended an incline of 1 in 9, the rails being in a very bad state at the time from damp weather.

"Since the introduction of wood paving, it may be calculated that a saving of one-half has been effected in the wear and tear of carriages, horses, and harness in those districts where it has been adopted ; a saving equally great can be made in the construction of railroads by the substitution of wood for iron rails. The rails may be made of beech or other hard English timber, six or eight inches square, let into wooden sleepers, and secured by wooden wedges, forming one great frame, or wooden grating of longitudinal and cross sleepers.

"An engine weighing ten tons running on wood will have more tractive power than one weighing eighteen tons running on iron ; and as the concussion and abrasion on wood is so trifling, carriages built to weigh one and a half tons will be as strong as those having to run on iron weighing three tons. An important question connected with this subject is the durability of the material of which the rails are composed. The engine employed for the experiment weighed about six tons ; it passed over the rails during the two months it ran 8,000 times in every variety of weather, which is equal to nearly seven years traffic of twelve engines per day. The rails consisted of Scotch fir, about nine feet long and six inches square ; and yet, upon examining them after the severe test to which they had been subjected, they exhibited no appearance of wear from the friction of the wheels on the upper surface, as the saw marks were not effaced.

"The capability of wood to sustain the strain to which it must necessarily be exposed, especially when moving over it at high velocities, has been satisfactorily proved by the experience of the Great Western and other railways, where continuous longitudinal sleepers of wood have been employed, and experience has shown that the solidity of the road is much greater than when the iron rails were attached either to stone locks or transverse wooden sleepers. In proof that wooden rails cut from beech will bear the wear and tear of trains passing over it, it is well known that beech cogs have proven to last eighteen to twenty years when working in gear with an iron wheel. The rails on the Vauxhall line were prepared by Payne's patented process for preventing dry-rot and decay of timber. Scotch fir, if subjected to pressure, will crush at ten tons, while beech (the wood recommended for railways) will bear a pressure of eighty-two tons before it begins to yield.

"Experience having confirmed the capability of Scotch fir to withstand the traffic of twelve engines per day for seven years, without any visible wear, it would be difficult to say how long the rails cut from beech, sustaining eighty-two tons pressure, would last. Some of the impediments with which railroads have to contend are the undulations of the country, and the necessity of diverging from a right line in order to obtain the traffic of important towns. These obstacles can only be overcome by an enormous outlay of capital, in making the required excavations and embankments, or by the oftentimes ruinous system of tunnelling, and after all, inclines of greater or less gradients are unavoidable, and prevent the line working economically. Curves on iron railroads are highly prejudicial, especially if the radius be small, as the wear and tear becomes proportionably increased. "Now, by the introduction of the proposed plan, the evils arising from the obstacles alluded to would be very materially diminished; for, in the first place, the surface resistance obtained by the elastic character of wooden rails, enables a train to be propelled up inclines with much greater facility and ease than on rails constructed of iron. The advantages of wooden railways thus constructed, in point of economy, comfort, durability, and as feeders to the great and central lines already formed, must be apparent to every one who has given the subject any consideration.

"The result of a series of experiments, made to ascertain the proportionate power of the bite of wood over iron, has fully borne out the assertion of the patentee, that the bite of the driving-wheel on wood is nearly double that on iron. On the surface of an iron wheel four feet in diameter, a lever eight feet long was placed, with a weight of seven pounds attached to the lever, three feet from the centre of the axis of the wheel ; the surface of the lever being iron at the tangent of the wheel, it required a weight of twenty-eight pounds attached to the crank to make it revolve. On substituting a wood surface for the iron one, it required a weight of forty-two pounds. Another experiment confirmed the result with the iron surface : a weight of twenty-eight pounds attached to the spoke of the wheel, at a distance of six and three-quarter inches from the centre, made it revolve ; whilst with a wooden surface, it required the same weight to be attached to the spoke at a distance of eleven and a half inches from its centre, thus clearly demonstrating the power obtained by the bite of the wood is nearly double the bite of iron.

"And speaking of these experiments, Herepath's journal says : 'The rails just laid down, soused by a heavy rain, were in a most wretched state of level, such that we believe no ordinary train—we mean constructed in the common mode—could have traversed at scarcely a walking speed, much less at that which the model obtained on Wednesday. At the left-hand sharp curve, turning into the circle where the gradient was as heavy as 1 in 100, the worst portion of the rails occurred ; yet the engine ran up this incline, and worked the curve with the undiminished speed of twenty to fifteen miles an hour. That was a pretty good test of the capabilities of the system.'

"Mr. J. M. MASON, (of *Trent* notoriety) when in England, devoted some attention to PROSSER'S system of wooden rails, with a view to their use in the Southern States during the war, and in a letter to Mr. C. J. BLOOMFIELD, he writes, 'I was most strongly impressed with their *feasibility* and *durability*.'"

A Great Salt Mine.

THE San Jose (Cal.) *Patriot* thus describes the Humboldt salt mine, about eighty miles northwest of Austin, Nevada, and not far from the line of railroad : "The surface of this salt plain looks exactly like that of a lake frozen over. The salt is hard, and also as smooth as ice. Were it not for fine particles which are condensed from vapors arising from beneath, and which cover the crystalline salt to the depth of perhaps one-eighth of an inch, it would make an excellent skating rink at all times of the year, except the very unfrequent occasions when covered with water. This magnificent expanse of crystallized salt is no less than twenty miles in length and twelve in width, without a break or flaw, or one particle of soil for the greater portion of that extent. The stratum of solid salt, we had almost said ice, which it continually suggests to our mind, is about six or seven inches thick, under which comes a layer of sticky, singular-looking mud, about two feet thick, and under this again another stratum of solid salt, as hard as quartz and transparent as glass, of unknown thickness to us. When we visited the mine about four years ago, we found a hole which had been sunk about six feet into its lower layer of salt, near the edge of the deposit, without going through it. In summer, this salt plain, glittering and scintillating in the light of an almost tropical sun, presents a brilliant appearance. The frosty covering and solid salt is as white as the driven snow, while that portion, when exposed, reflects dazzling prismatic colors. Of course, there is salt enough in this immense deposit to supply the world for untold ages. It is remarkably pure, being 95 per cent. of salt and 5 per cent of soda--purer than we use for our tables."

A Mammoth Canal Scheme.

The California Commissioners on Swamp and Land Reclamation have reported favorably upon a project for an extensive canal through a portion of the Sacramento valley. This report, with the estimates to follow it, will be made the base of a bill providing for the issue of $4,000,000 of State bonds, to be paid by a tax levied on the reclaimed lands. Such a project, says the San Francisco *Bulletin*, is of doubtful constitutionality, even if it were politic, which it is not, to loan the State credit for so large a sum, or for any sum whatever, in behalf of a local and private improvement. Governor HAIGHT hits the right chord when he says in his message, referring to this very project, that the State ought not to be made a party to the expenditure, either as principal or guarantor. It is improbable that he would approve any bill for the issue of State bonds in the way proposed.

Artesian Well in California.

A mammoth artesian well has been sunk in San Bernardino, Cal., which, at the depth of one hundred and thirty feet, struck a vein of water of sufficient magnitude to cause the constant flow of a stream thirty inches in diameter, which is ejected with sufficient velocity to force it forty feet above the surface. Many persons daily visit this great curiosity.

THE ENGINEERING AND MINING JOURNAL.

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ROSSITER W. RAYMOND, Ph. D., Editor,

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Publishers' Notice.

BY a typographical error, overlooked until too late for correction, except at the cost of delay in the issue of our paper, the title-page furnished with last week's number was printed with the old name—"AMERICAN JOURNAL OF MINING"—instead of the new one, "ENGINEERING AND MINING JOURNAL." We therefore issue this week, and furnish to each of our subscribers, a new title-sheet, which can easily be substituted for the other by any binder.

Bound copies of Volume VIII., containing THE ENGINEERING AND MINING JOURNAL from July to December, 1869, are for sale at this office, until further notice, at $4 per copy. The price, as our readers are aware, is usually advanced as the copies grow scarcer; and we would therefore advise all who intend to keep a complete set of the JOURNAL, to send in their orders at once.

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Safety Lamps.

WE have from time to time recorded and commented upon numerous experiments, going to show that safety lamps, in mines containing explosive gases, afford a relative security only. This was, perhaps, never more strikingly (and harmlessly) shown, than in an incident which occurred some years ago, in Zwickau, Saxony.

A lecturer had been explaining the principle of the safety lamp to a considerable audience, and proposed to illustrate his remarks with an experiment. For this purpose, he had prepared a simple apparatus, consisting of a large glass jar and a rubber pipe with a glass elbow at one end. The other end of the pipe was connected with a gas fixture; a safety lamp was set inside the jar, and the bent glass nozzle was introduced to the bottom of the lamp. The lecturer remarked, that, upon turning on the gas, an explosive mixture of carburetted hydrogen and common air would be formed in the jar; the flame of the lamp would be elongated, and a long blue tip would be seen; then the whole interior of the wire gauze cylinder would be filled with flame; but, though the gauze might become red hot, the flame could not in any case strike through to the outside—all of which phenomena, positive and negative, would be clearly visible through the transparent jar. The gas-cock was thereupon opened; but instead of the peaceful demonstration looked for, a prompt contradiction of the theory was the result. The flame was communicated almost instantly to the gas outside of the lamp. In some confusion, the lecturer repeated the experiment, but with the same result; and he finally gave it up, confessing his inability to explain the disappointment, except on the hypothesis of some unknown imperfection in the lamp. The occurrence made a good deal of stir, particularly as there are many coal mines in the Zwickau district troubled with fiery gases; and at that time recent accidents had been occasioned by explosions in spite of safety lamps. The test was therefore repeated, still more publicly, upon some sixty lamps of various patterns; and it was found that only the old-fashioned DAVY, and one other, the name of which escapes us, would retain the flame. Those lamps were found to be particularly dangerous which possessed separate openings below for the admission of air to support the flame.

These experiments indicate the same conclusion as was lately arrived at by English investigators, namely, that the strength of the draft of inflammable gases through a safety lamp has much to do with the degree of its security. The Zwickau lamp may have been unusually faulty in construction, rather than principle; but this fact, though it might lessen the importance of these special experiments, could not alter the general bearing of both practice and theory, on the question of the safety of all lamps. The principle involved is that of the rapid conduction and radiation of heat by the wire of the gauze surrounding the flame. Before the burning gas can pass through the meshes, it is said, so much of its heat will have been abstracted, and radiated away in all directions, that it will fall below the temperature of ignition or explosion. Now, this depends on the amount of heat communicated to the wire in a given time. The wire may get hot faster than it can grow cool again; and if this increase of temperature is carried to a white heat, the gas outside will be set on fire. But the amount of heat given to the wire in a certain time depends again on the amount of burning gas that passes through it in that time; and hence it is clear that a strong current of gas may overheat the wire, and cause an explosion. The DAVY lamp is not constructed to favor a strong current. Indeed, one complaint of it has been the feebleness of the light, from insufficient air. It appears, however, that attempts to remedy this deficiency are fraught with peril.

We desire to call the attention of engineers to the great simplicity and conclusiveness of the test above described, and to urge that it be at once applied to the lamps of every mine. There can be no harm in knowing whether the lamps will do what is claimed for them. It is true that common illuminating gas forms with common air a more explosive mixture than does the fire-damp of mines; but the severity of this test ought to be nothing against it, so long as any lamp can be found to bear it.

In the general dissatisfaction with the use of safety lamps, which spread through the Zwickau district after the experiments alluded to, a new and bold plan was suggested, and has been carried out in several cases with the best success. This was nothing more nor less than *to burn naked lights in great numbers* wherever inflammable gases made their appearance. Some of the workings presented, under this system, an unwonted appearance. In one case, the fire-damp could be heard streaming out of the fissures of the coal, with that peculiar humming sound which the miners know so well and fear so greatly; the innumerable lights carried each a long blue tip—the usual signal of danger; yet no harm occurred. The gases were quietly consumed as fast as they entered the mine; and the illumination was so carefully kept up, night and day, Sundays and between shifts, that no opportunity was given for an accumulation of explosive material.

The great difficulty of this plan is its direct injurious effect on ventilation. The stationary lights with which the mine is crowded, in addition to those carried by the workmen themselves, must necessarily use up a good deal of oxygen, and produce a good deal of carbonic acid. But this is an evil which can be combatted in other ways; and at all events, it is preferable to the danger of explosion. Perhaps it might be an improvement to use safety-lamps instead of naked lights, hanging them in great numbers along the walls, so as to secure the complete, quiet combustion of the gas. But it must be confessed that, even under circumstances of the greatest danger, the naked lights have done very well; and no accident, so far as we are aware, has ever resulted from their use in this way.

Propositions have been made to explode the accumulated gas in workings before the workmen are allowed to enter it. In a rude way, this has frequently done in fiery mines; and to remove all personal danger, it is now suggested that the explosion be effected by means of a battery. But this whole system of allowing the fire-damp to accumulate while the workmen are absent, and then firing it off all at once, strikes us as much inferior to the simple expedient of burning it gradually, as above described. This method of fighting fire with fire is certainly ingenious; and we recommend its cautious trial by our coal miners, especially in cases where sudden outbursts of gas in great quantities do not occur, but the gas accumulates in the workings gradually, and mainly between shifts, which is far the most common manner of its appearance.

In workings thus illuminated for the purpose of consuming the fire-damp, a curious state of things is likely to come to pass. The inflammable gases gather along the roof, and burn quietly over the numerous lamps, in so many ghastly flames, like the clutching fingers of impotent demons. The carbonic acid produced sinks to the bottom and flows out along the floor (if ventilation is intelligently adjusted). And between these two strata of noxious gases, the air which the workmen breathe is interposed. Straining a point or two for the sake of dramatic effect, we might say that death flickers overhead, and death surges underfoot, yet life is protected above and below by the invisible hand of natural law. But this is far from the literal truth. The chief peril, both of fire-damp and of choke-damp, lies in their unwatched or sudden accumulation; and the system we have described provides for their gradual removal as fast as they are generated. In a word, the danger is diluted, and thus rendered comparatively harmless. It is not claimed that by this arrangement perfectly pure air is obtained, and the comfort of the miners secured as completely as in a mine not subject to fire-damp. But such a mine cannot be expected to present conditions of highly convenient working, under any system. Thorough natural or mechanical ventilation is in every case a great desideratum. But at the working-breast, and in new shafts or uplifts, where the complete apparatus of ventilation cannot be made to operate, an adequate illumination, such as we have described, will be found a simple, cheap, and easy expedient for facilitating work which might otherwise become extremely dangerous, or even utterly impracticable.

In conclusion, we desire to acknowledge our indebtedness to Mr. A. MEZGER, M.E., for the notes of experiments in Saxony and other countries, upon which the suggestions of this article are based.

The New York Assay Office.

IT is reported by the Associated Press that Hon. JOHN JAY KNOX, Deputy Comptroller of the Currency, has been engaged for some time past in a revision of the Mint laws. It is proposed to embody in one law the numerous acts now in existence with reference to the coinage of the country, and the different mint and assay offices now established, and when completed, to refer the law, as prepared, to a committee of experts. After final revision, it will be transmitted to Congress, with the approval of the Secretary of the Treasury. The new law will require the head officer of the Mint to have his office in the Treasury. The different mints and assay offices will report to this officer, and be entirely independent of the Mint at Philadelphia. The Treasurer of the Mint will not perform the duties of Assistant Treasurer of the United States, as at present, and the law will be changed in many other important respects. The bill will probably be ready to send to Congress early in the present month.

We hope this reform may be successfully carried out, or not at all. The trouble with revisions of this kind too frequently is, that after a complete and well-digested plan is submitted to Congress, it suffers so many alterations before its final passage, that its original object, and the consistency and harmony of its different parts, are destroyed.

A matter of equal importance with the construction of the law, is the selection of officers to serve under it; and we take this occasion to renew the argument which we pressed not long ago, when the appointment of a Director of the Mint was pending.

The important office of Superintendent of the New York Assay Office is now vacant; and we earnestly trust that it will not be given to a politician, or to any one on merely political grounds. Mere capacity to discharge the routine duties of the place should not be considered a sufficient qualification. The position will amount to a mere clerkship, if filled by a mere clerk; but in the hands of a competent expert, it will maintain the importance that belongs to it. By expert, we do not mean a metallurgist or assayer only. That department of the work is in the best possible hands already—those of Dr. TORREY and Mr. MASON. The Superintendent should have the necessary knowledge to supervise all the operations of the office; but he should be also, and especially, acquainted with the subjects of coinage and currency, with the mint laws and their operations, and with the science of political economy, as affected by these things. When the statesmen and scientific directors of foreign mints meet to discuss such matters, our country should not be represented only by the amiable twaddle of an extemporized delegate, while the officers of our mint, in all these weighty discussions, preserve silence, in order not to betray ignorance. Skill and fidelity on the part of scientific assistants do not supply the deficiency of comprehensive views in the chief.

It is not our present purpose to name any particular person for this place. We have knowledge of at least one officer in the Treasury Department at Washington who has conducted its correspondence on this subject for years, and is directly charged with duties concerning coinage and currency. If he would accept the post, it could not be better bestowed. But we shall be satisfied with any choice, if it is wisely made, on the grounds we have indicated.

Samson Redivivus.

A EUROPEAN correspondent of the London *Mining Journal* says that a new and extremely valuable discovery has been made in the celebrated Samson mine of Andreasberg—one of the deepest mines in the world. The mine had ceased to be worked owing to the great depth and to the comparative small value of the lode at the 412 fathom level. Since last July, however, the works have been continued, and in the beginning of August, a splendid discovery was made. The lode, which was before from ten to fifteen inches broad, spread out to over two feet, with about from three to four inches of pure ruby silver. The first kibbel of this ore brought to the surface contained somewhat over 200 weight, and a fairly-taken sample gave 51 per cent. of fine silver. The ore was most beautifully crystallized; and the greater portion will be sold as specimens, as a higher price is thereby obtained than by sending it to the smelting works.

This is unexpected good news. If it is only confirmed by subsequent discoveries, it will, perhaps, restore the Samson to its old importance, and greatly encourage further prospecting in the abandoned Andreasberg mines.

The Mining Law.

MANY persons find it easy enough to find fault with the present incomplete mining law of the United States; but no one likes to undertake the difficult and thankless task of proposing amendments. We commence this week the publication of a series of letters on the subject, addressed to the Commissioner of Mining Statistics, by Hon. E. F. DUNNE, late of Humboldt and White Pine counties, Nevada.

Judge DUNNE is entitled to credit, both for the disinterested courtesy and public spirit with which he acceded to the request that he would discuss this intricate subject, and also for the ability and cleverness of the treatmen the has given it. We withhold further comment upon his letters until his views shall have been more fully placed before our readers, and content ourselves, for the present, with calling attention to them as a most valuable contribution to the literature of this subject, from one of the best authorities in the country.

To Color Mica.

We have more than once noticed the spectacles made of mica, intended to protect the eyes of workmen from fragments of metal or stone, and also those of furnace-workers, from the effects of heat. In the case of these latter, objections have been raised to the whiteness of the mica, and it becomes desirable to give the spectacles a bluish color. This was at first accomplished by sticking very thin colored gelatine on them, but a better plan has been suggested by Dr. Schwarz. What is known by painters on porcelain as "copper luster," is an organic compound of bismuth, with a small amount of gold. When this is put on porcelain and burnt in with a gentle heat, it gives a copper-red lustrous mirror. The same solution, painted very thin and equally on the mica, and then dried, may be burnt in by the heat of a spirit-lamp, and will show by reflected light, the same copper-red color; but by transmitted light, as when the spectacles are worn, the color seen is a bright blue, which does not at all interfere with the vision. Platinum and gold glaze, applied in the same way and burnt in, exhibit a silvery or golden lustre by reflected light, but by transmitted, show gray or greenish blue color. Dr. Schwarz points out that these effects may lend themselves to a variety of ornamental and decorative purposes.—*Mechanics' Magazine.*

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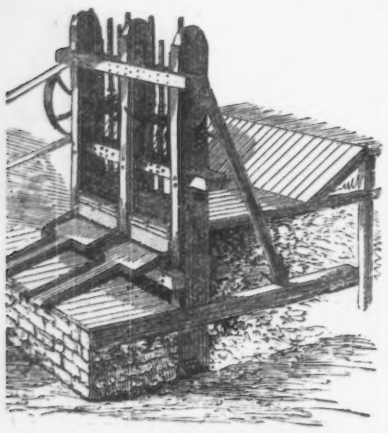

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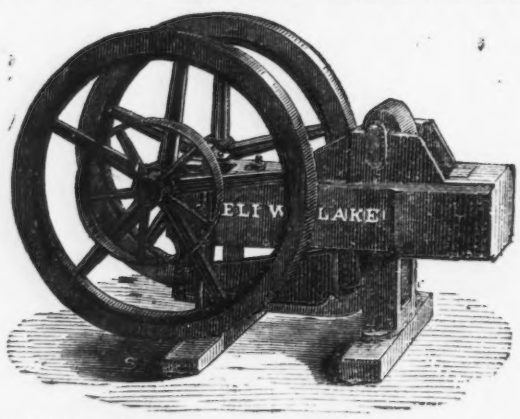

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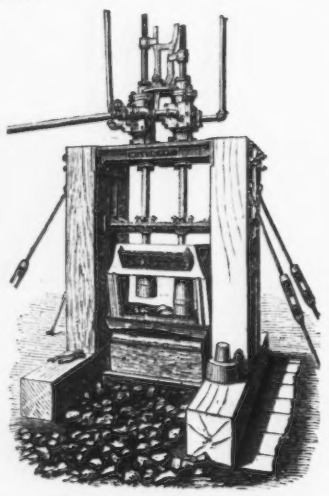

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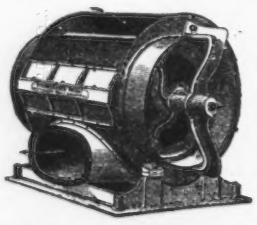

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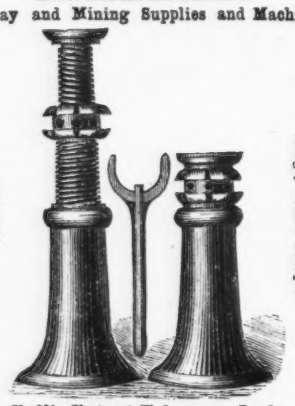

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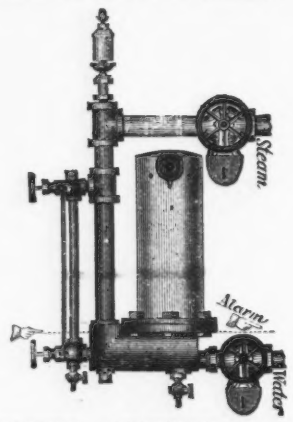

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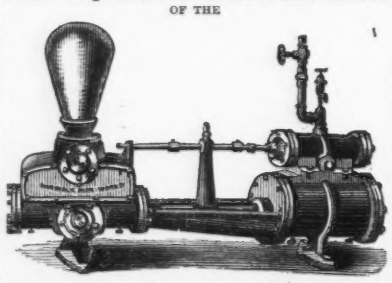

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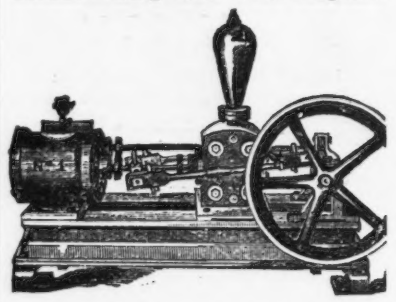

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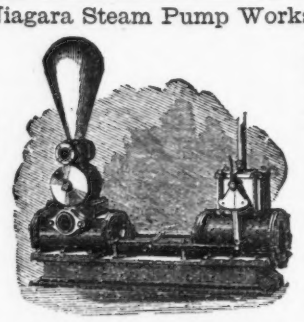

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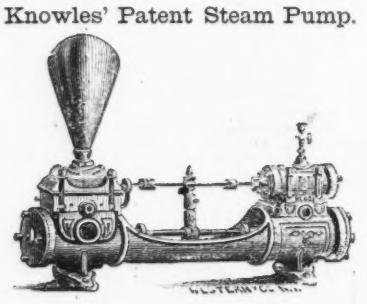

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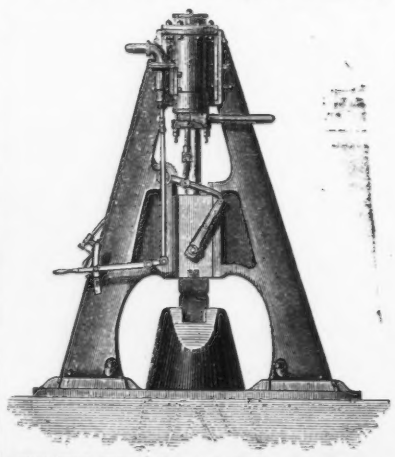

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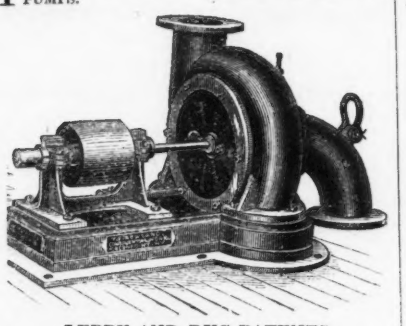

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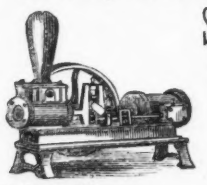

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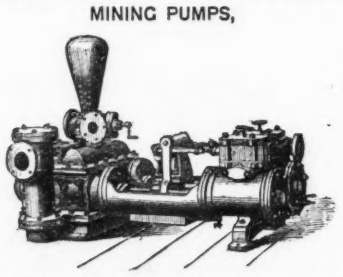

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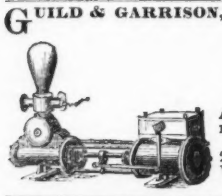

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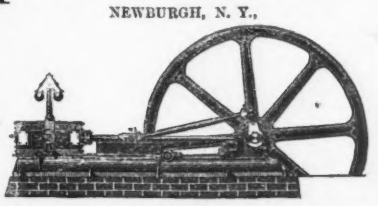

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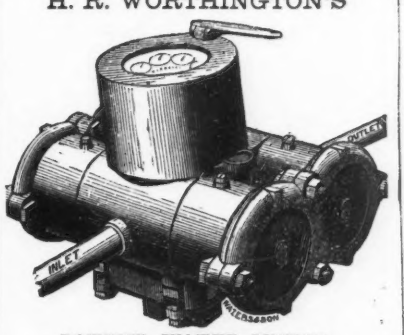

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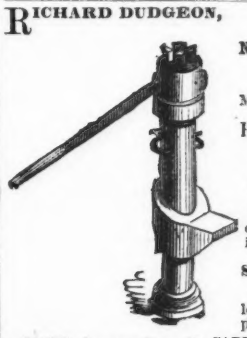

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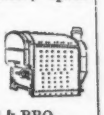

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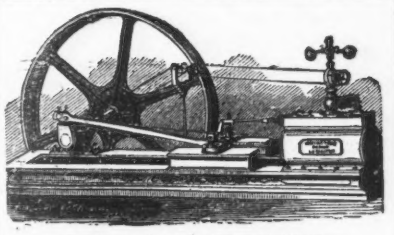

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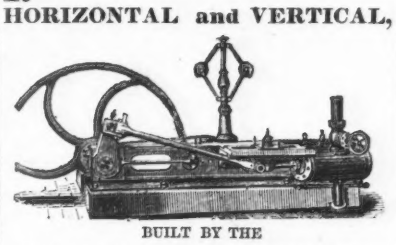

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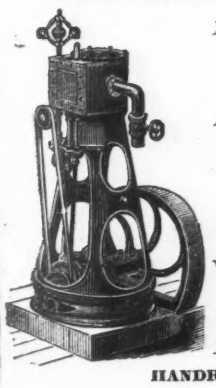

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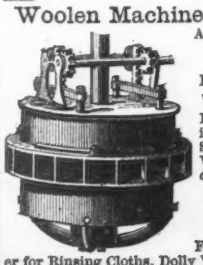

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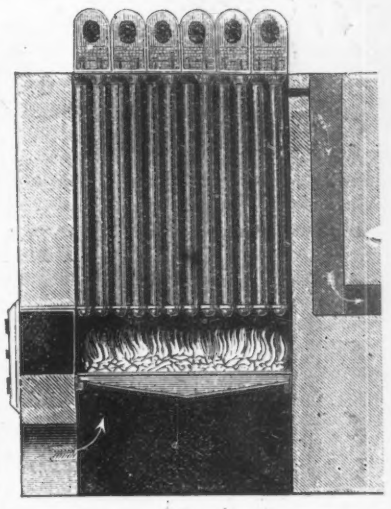

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